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Photographer: Adam Woodworth
Location: Boulder Beach & Otter Cliffs, Acadia National Park, Maine
Equipment: Nikon D800E, Nikkor 14-24mm f/2.8G ED

Situation: The green glow in the sky is real, a result of “airglow”, a natural phenomenon that occurs high up in the atmosphere as particles emit light when they react to scattered radiation from the sun and other cosmic sources. The sky doesn’t look like this to your eye at night, but the camera is capable of seeing much more light during a long exposure. Airglow is much more visible to the camera in places where the sky is very dark without light pollution.

The final image is a blend of five main images, but technically nine exposures. The sky is made up of five exposures at ISO 6400 f/2.8 for 10 seconds each, which are then stacked with Starry Landscape Stacker (available for Mac only, but you can do this in Photoshop) to achieve pinpoint stars and lower noise than a single ISO 3200 shot for 25 seconds would have yielded. The foreground is from four other exposures—three at ISO 3200 f/2.8 for 5 minutes each, and one at ISO 1600 f/2.8 for 10 minutes. The foreground exposures are taken at different focus distances so that I can get the entire scene in focus after blending them together. Doing it with multiple exposures instead of a single exposure at f/8 or f/11 means the exposures take less time and I can retake one more easily if there was a mistake, and I can capture water movement in a different way. All shots were taken at 14mm.

—Adam Woodworth



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As creative artists, it is imperative that, as we visualize, we become aware of the components that really make up the scene before us—line, shape, texture, color, etc., are to photography what grammar is to language,” reflects **Mark Lissick**, whose feature “Building Stories” in this issue explores the ways in which we can create compelling images that are more than just visually beautiful, but that invite the viewer’s imagination to experience, as Lissick puts it, “the same emotions and moods that were present when you created the image.”

One of the themes running through several features in this issue is the idea that, whether preconceived or serendipitously encountered, the best photographs have a purpose, a story to tell. You might observe that the appeal of *Outdoor Photographer* is that it has such a purpose—bringing together photographers who share a passion for the beauty and wonders of the natural world, and who often go to extremes to capture images of places and phenomena that most people will only experience through those images.

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For example, in this issue, we travel to pristine alpine peaks with adventure photographer **Kamil Tamiola**, then dive into surreal scenes of fish spawning in the waters of Palau with **Tony Wu**. What motivates photographers to push themselves into inhospitable, even dangerous environments in the pursuit of images? For Ph.D.-turned-photographer Tamiola, it’s all about experimenting, “...not just with the settings of the camera, but with the weather, with the landscape, or with the scenarios, or with lights. This is what excites me,” he explains in “Luck Favors The Prepared.”

Of his obsession with the spectacle of fish spawning, Tony Wu says, “This is one of nature’s greatest events, one that few have witnessed,” in his article “Aquatic Aggregations.” Though expressed in different ways, the common denominator for both Wu and Tamiola is discovery.

It’s safe to say that all photographers share this impulse. It’s what prompts us to seek out new locations and points of view, or to return to favorite places year after year in search of “special conditions that will elevate an image from ordinary to something uniquely interesting,” as **Geoffrey Schmid** remarks about the origins of his photograph, “Changing Seasons, Chinook Pass,” which is featured in this issue’s “Showcase” as the First Place winner of our **6th Annual Great Outdoors Photo Contest**. As the popularity of our contests proves, photographers love a challenge.

Also in this issue is an excellent primer on the latest update to Adobe Lightroom CC. **Jason Bradley** introduces us to several new features that will be particularly useful for landscape photography, including powerful new tools for creating multi-shot panoramas and HDR composites. If you’re a Lightroom Creative Cloud subscriber, these features are available now.

We also look at the latest options in custom-printed photo books. If you haven’t created your own photo book, I highly recommend it. The process of selecting the photos and arranging them to tell a story is rewarding in itself, but seeing your images in a beautifully bound collection that you can share with family and friends is priceless.

—Wes Pitts, Editor

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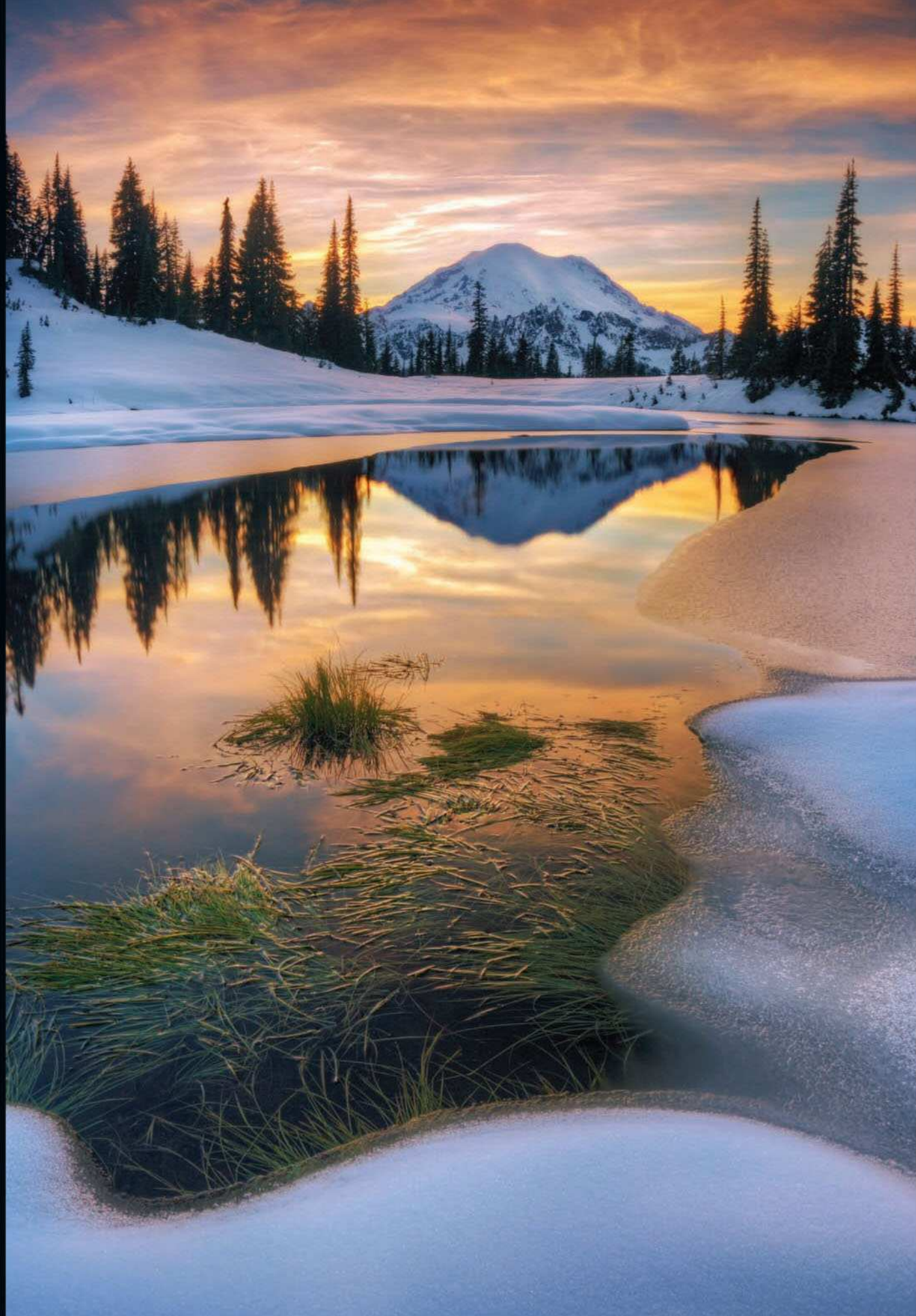
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First Place Changing Seasons, Chinook Pass Geoffrey Schmid

"I tend to go back to favorite locations at different times in different seasons looking for special conditions that will elevate an image from ordinary to something uniquely interesting. This area on the eastern side of Mount Rainier National Park is popular for the still reflections in the lakes and tarns and abundant wildflower displays in the summer. I wanted to capture it in the changing conditions between seasons with golden, late autumn light glowing in the new ice as the lakes and tarns begin to freeze and the first snow blankets the meadows. The soft curves of ice and snow, the grasses breaking the surface of the tarn in the foreground, the mountain and its reflection were a joy to choreograph in this composition. As usual, I had to work fast as the light changed. Repeat trips are also necessary to attempt to time the weather. As it often is with mountain passes, the area is usually socked in with clouds and fog or offers the complete opposite—crystal-clear skies. Seems I'm one of the last guys to use optical filters nowadays. The look rendered with a polarizer, if adjusted correctly, just can't be duplicated with software, and I find that graduated neutral-density filters help me to "get in the ballpark" and be more creative at the time of capture rather than just trusting in my blending abilities in post."

► *Canon EOS 5D Mark III, Canon EF 17-40mm f/4, graduated neutral-density filter, polarizer, tripod*





Second Place

Lonely Tree

By Gordon Magee

“This photo was taken in February 2015 in Yellowstone National Park. We were riding in a snow coach along the Grand Loop Road when I spotted this “lonely tree” silhouetted against some snow-covered hills. It was a cloudy day and the clouds seemed similar in texture to the snow. The scene made me think of sand dunes. Taking the shot resulted in getting a contrasting edge to the hills and the dark tree. It was postprocessed in Lightroom with changes only to lighting and exposure.”

► *Sony A99V, Sony 70-200mm f/2.8*

Third Place

Whisper Of Darkness

By John Fan

"I spent a few days in September 2014 photographing the Big Sur region of California's central coast. A small waterfall at the beach attracted my attention. I decided to stay with it to shoot the sunset. Big Sur, however, is known for its constantly cloudy, foggy weather. The evening hour around sunset was predictably cloudy. The sunset was disappointing, but I still stayed a couple of hours after sunset, hoping the clouds would clear up so I could take some night shots. The magic didn't happen. So I left the scene

to drive back to my hotel in Monterey Bay. While I was driving on the twisting mountain road, all of a sudden I felt that there were some stars visible in the sky. I pulled over. To my delight, the sky was clearing up. I went back to my hotel, slept two hours, got up and drove an hour in the dark back to the waterfall. Now the sky was totally clear. It was so clear that I could see the Milky Way with my naked eye. I knew this was my lucky day. I spent so much time there the previous day, so the composition was straightforward, even in the complete darkness. I took two shots, one for the sky and one for the foreground. I tilted the camera upward slightly for the sky shot to include more sky while tilting it down

for the foreground shot, with the intention to stitch them together for a 1:1 aspect ratio. After taking the shots, I realized that the foreground was too dark. So I left the camera on the tripod untouched and waited another two hours or so in the dark. At about one hour before sunrise, it started to have some light in the sky and the foreground became visible to the eyes. I took the third shot, just for the foreground. Back at home, I stitched the first two shots together and cropped the image to a 1:1 ratio. Then I aligned the third shot just to blend in the areas where I wanted to show more foreground details."

► Sony A99, Zeiss 16-35mm f/2.8, Really Right Stuff TVC-24 tripod, BH-40 ballhead



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▲ RICOH GR II

Ricoh has added built-in WiFi with easy NFC connection to its flagship compact model. The new **GR II** retains its predecessor's compact dimensions (4.6x2.5x1.4 inches, 7.8 ounces), 16.2-megapixel APS-C CMOS sensor with no AA filter and 28mm (equivalent) *f*/2.8 lens (with 9-blade diaphragm for natural bokeh). Seventeen effects include a new HDR Tone one. There's a built-in flash unit, plus the ability to control certain Pentax flash units wirelessly off-camera. A web-based app lets you control camera settings via almost any browser. The GR II can shoot up to 10 fps (4 fps with AF), as well as 1080/30p video. The 3.0-inch, 1230K-dot LCD monitor can be supplemented with an optional shoe-mount optical finder. Estimated Street Price: \$799. **Contact:** Ricoh Imaging, www.us.ricoh-imaging.com.



◀ OP/TECH RAINSLLEEVE – SMALL

OP/TECH's Rainsleeve protective plastic covers for cameras have been popular with outdoor shooters as an easy-to-carry, easy-to-use way to protect gear from rain, sand and snow. Now there's a new size: the Rainsleeve – Small. It can fit a camera with a lens up to 4.5 inches in diameter and 8 inches long, yet fits easily in a pocket or camera bag. A unique viewfinder eyepiece opening adapts to most camera viewfinders, allowing you to compose through the lens, not the plastic. The Rainsleeve – Small comes two per package. Estimated Street Price: \$8.95. **Contact:** OP/TECH, www.optechusa.com.



◀ SIGMA 24-35MM F/2 DG HSM | A

The newest member of **Sigma's** high-quality Global Vision Art lenses, the **24-35mm f/2 DG HSM | A** was designed specifically for full-frame sensors (but also can be used with APS-C DSLRs). It provides three popular focal lengths (24mm, 28mm and 35mm) with prime lens image quality, but the ability to change focal lengths at the twist of a wrist and no need to carry three lenses into the field. A difficult-to-produce, large-diameter aspherical element, an FLD element (equivalent in performance to fluorite) and seven SLD elements minimize field curvature and spherical and axial chromatic aberrations. An HSM AF motor and a new AF algorithm deliver quick, smooth AF, along with full-time manual focusing, when desired. The lens measures 3.4x4.8 inches and weighs 33.2 ounces, and takes 82mm filters. It will be available in Canon, Nikon and Sigma SA mounts. Estimated Street Price: TBA. **Contact:** Sigma, www.sigmaphoto.com.

▼ DXO ONE CAMERA

DxO, best known for its advanced image-processing technologies (and DxOMark.com sensor ratings), has introduced its first camera. The **DxO ONE** connects to an iPhone or iPad via the Lightning connector and uses the smart device's screen as the camera monitor. Featuring a 20.2-megapixel, one-inch, backside-illuminated CMOS sensor, the ONE delivers good performance in dim light (100-51,200 ISO range), while its 32mm (equivalent) f/1.8 lens can produce shallow depth of field and beautiful bokeh for portraits. The camera also can do 1080/30p and 720/120p video. SuperRAW mode shoots four images in rapid succession and merges them (when connected to your Mac or PC) using the latest in spatial and temporal noise reduction for even better image quality. The ONE is 2.65 inches tall and weighs 3.8 ounces. Estimated Street Price: \$599 (for a limited time including free licenses for DxO OpticsPro ELITE and FilmPack ELITE software). **Contact:** DxO, www.dxo.com.





◀ TOKINA AT-X 24-70MM F/2.8 ZOOM

With DSLR megapixel counts hitting remarkable levels, **Tokina** has introduced the **AT-X 24-70mm f/2.8 high-performance zoom lens**, designed for high-pixel-count, full-frame sensors. Among its 15 elements in 11 groups are three precision molded all-glass aspherical elements (one of Super Low Dispersion glass) to control spherical aberrations, plus three SD elements in the rear groups to minimize chromatic aberrations. The lens can focus down to 1.2 feet (0.21X maximum magnification) and features an SDM (Silent Drive Module) AF motor for quick, quiet autofocus. It also features Tokina's One-touch focus Clutch mechanism, while allowing you to switch between auto and manual focus simply by pushing the focusing ring forward (for AF) or pulling it rearward (for MF). The lens measures 3.5x4.2 inches and weighs 2.2 pounds. It's available in mounts for Canon and Nikon full-frame DSLRs (it also can be used on APS-C cameras). Estimated Street Price: \$999. **Contact:** Kenko Tokina USA, www.kenkotokinausa.com.

▼ LAOWA 15MM F/4 1:1 MACRO

There are lots of wide-angle lenses on the market and quite a few macro lenses. Now we have the world's widest-angle 1:1 macro lens: The **Laowa 15mm f/4** takes in a 110° angle of view on a full-frame camera (85° on an APS-C camera) and will focus down to 4.7 inches (0.2-inch working distance), close enough to deliver a 1:1 magnification at the image plane. Superwide-angle macro photography opens up lots of photo ops for flower and small critter photographers. The manual-focus lens is available in mounts for Canon, Nikon, Pentax, and Sony A and FE digital cameras. Estimated Street Price: \$479. **Contact:** Venus Optics, www.venuslens.net.



▲ TAMRAC ANVIL BACKPACKS

Inspired by thunderstorm clouds and blacksmith tools, **Tamrac's** new **Anvil backpacks** are tough units designed and manufactured to carry your gear safely on tough treks. The packs feature a comfortable airflow harness, Cordura fabric, Duraflex buckles and YKK zippers, and come in six sizes. The smallest will accommodate a pro DSLR with up to a 600mm lens attached. The belt is removable, so if you have an Anvil backpack, you also have a belt unit. Quick-release straps can carry a tripod. Estimated Street Price: \$229.95-\$329.95. **Contact:** Tamrac, www.tamrac.com.

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▼ CANON POWERSHOT G3 X

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▲ COTTON CARRIER ENDEAVOR BELT

Cotton Carrier's Endeavor Belt makes it easy to carry your DSLR or mirrorless camera comfortably and hands-free. It holds the camera securely, yet provides easy access. Made of durable 1680 denier polypropylene and fitted with a Lexan camera receptacle, the device includes a shoulder strap with sliding safety tether and a small pocket for a wallet, cell phone or extra lens. Estimated Street Price: \$89. **Contact:** Cotton Carrier, www.cottoncarrier.com.





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▲ PANASONIC DMC-CM1 COMMUNICATION CAMERA

The world's only one-inch-sensor camera with Android OS and unlocked GSM smartphone functionality, **Panasonic's DMC-CM1** features a 20.1-megapixel, one-inch, high-sensitivity MOS sensor, a 28mm (equivalent) $f/2.8$ Leica DC lens and a huge 4.7-inch, 6220K-dot rear monitor. Besides full auto and manual camera features, the CM1 can do 3840x2160/15p 4K video and 1080/30p full HD, and shoot stills at 5 fps with live view, 10 fps without live view and 50 fps at 5-megapixel resolution. It has built-in WiFi with NFC, Bluetooth and high-speed LTE technology, as well as GPS. It measures 5.3x2.7x0.8 inches and weighs 7.2 ounces. Estimated Street Price: \$999.99. **Contact:** Panasonic, shop.panasonic.com.



▲ SONY RX100 IV

Sony's RX100 cameras have been hot sellers from the start, combining good image quality with a pocketable package. The **RX100 IV** continues that, and then some. The new 20.1-megapixel, one-inch Exmor RS CMOS sensor features a stacked configuration, with the pixel area on top, the high-speed signal processing circuitry below and an on-chip DRAM memory chip below that. The 5X faster readout made possible by this provides 16 fps full-res still shooting with no blackout (but focus fixed at the first frame), a top shutter speed of 1/32,000, plus 4K video in-camera at 30p, super-slow motion up to 960 fps (40x) at 800x270 and full-pixel readout video with no binning or line skipping. The tilting 3.0-inch, 1229K-dot external monitor is complemented by a 2.35-megapixel EVF. AF performance also has been sped up. Dimensions are 4.0x2.3x1.5 inches, and weight is 9.6 ounces. Estimated Street Price: \$1,000. **Contact:** Sony, store.sony.com.

▼ THINK TANK PHOTO TRIFECTA 10 DSLR BACKPACK

Think Tank Photo's Trifecta 10 DSLR Backpack can hold your DSLR with the three workhorse zooms (ultrawide, normal, tele)—for example, a Nikon D810 with a 70-200mm $f/2.8$, 24-70mm $f/2.8$ and 14-24mm $f/2.8$ —plus an iPad. And you can access them easily without removing the pack, via the left side, right side or rear panel. DWR coating protects against the elements, while the contoured design helps you move through brush. Estimated Street Price: \$159.95. **Contact:** Think Tank Photo, www.thinktankphoto.com.





▲ BOSSTRAP GENERATION 3 SLIDING SLING STRAP

This is a very cool device for the outdoor photographer. At first, the **BosStrap Generation 3** looks like other shoulder straps, but it attaches to the camera strap lug, not the tripod socket. This means you quickly can switch between tripod and handheld shooting—no need to detach the strap from the camera to get at the tripod socket. It also means the camera is always attached to you, the tripod, or both—minimizing the chances of an accident when transferring camera to or from tripod. Another great feature is the slide. When you bring the camera up to shooting position, the strap doesn't move and chafe your neck: only the slide moves, along the strap. The strap was designed specifically for heavier DSLRs. Estimated Street Price: \$47.95. **Contact:** BosStrap, www.bosstrap.com.

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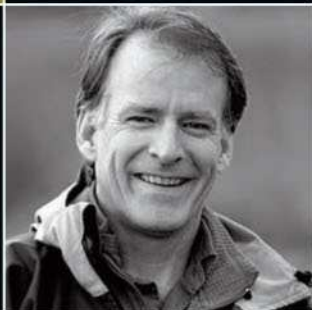


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The Journey To Cape Solitude

A 30-mile walk for a photo of an inspirational and endangered vista

[By Bill Hatcher]

One afternoon and for most of a night I walked 30 miles roundtrip so I could shoot a landscape photo in the Grand Canyon. I started from Desert View Tower on the Canyon's South Rim with my destination being Cape Solitude, an overlook above the confluence of the Grand Canyon, 15.1 miles away. The confluence is where the canyon's two great river systems, the Colorado and the Little Colorado Rivers, meet. The place is considered by many to be the heart of the Grand Canyon and it holds spiritual significance to many Native American tribes. What sent me there was an assignment for *Smithsonian* magazine for the March 2015 issue (you can see the story here: www.smithsonianmag.com/arts-culture/who-can-save-the-grand-canyon-180954329) to document a story about a proposed development that could forever change this iconic, wild and scenic landscape. While the photo I was seeking to shoot was important for the story, I actually enjoyed the unexpected adventure of this painful long walk, a walk that was rewarded by being able to experience such an extraordinary view. In short my little adventure is what exploring national parks is all about.

Before my walk to Cape Solitude I met with Grand Canyon National Park Superintendent Dave Ueberuaga at Yavapai Point. He explained that there are two proposed developments, a massive resort on the park's southern boundary and a tramway from the canyon rim to the confluence. He says these developments pose the greatest threats that Grand Canyon National Park has ever faced in its history and the Grand Canyon is no stranger to development. Over the past 95 years there have been dams, uranium mines and many other threats to the land, air, water and scenery in and around the Grand Canyon.

Surprisingly, in my many years of exploring in the Grand Canyon, I had never been out to Cape Solitude. The Cape is a lofty and remote vista that sits 3,400 feet above the confluence and unfortunately has a perfect view of the proposed tram development. I first heard about the Cape years before when reading Edward Abbey's account in his book *Abbey's Road*. Following an exhaustive book tour Abbey sought out the most remote place in the southwest, to reconnect with wilderness, nature and recharge his soul. This is what led him to Cape Solitude. Abbey writes of his visit, "Tonight and tomorrow and for the next few days, I am going to walk the rim of Cape Solitude, along the palisades of the desert, and save myself. Without half trying."

My original intent in getting out to shoot at Cape Solitude was to mountain bike out there, loading my camera gear (a Nikon D810, AF-S NIKKOR 16-35mm f/4G ED VR, AF NIKKOR



A hiker's view of the confluence of the Colorado River and the Little Colorado River from Cape Solitude in the eastern region of Grand Canyon National Park, Arizona.

50mm f/1.8D and a small Gitzo carbon-fiber tripod) and some water and food onto the rack of my full-suspension mountain bike (I am using the Freeload rack formally made in New Zealand and now distributed as the Thule Pack 'n Pedal Tour Rack). But then I learned from the Park Service backcountry office that new national park rules will only allow me to pedal a little more than a mile. The rest of the trip out to the Point had to be on foot. I rode my bike as far as I was legally allowed, then donned my daypack and camera. My plan for a few hours' bike ride to

the Cape had been changed to a 12-hour power hike. I expected the walk to be pure hardship, but instead it became a sort of quest.

Twenty minutes after leaving the rim on my bike, I had lost most of the elevation from Desert View to the spot where I stashed my bike above a tributary of Straight Canyon. This is where the walk started down a 4x4 trail toward Straight Canyon and past Cedar Mountain, a familiar landmark in the Eastern Grand Canyon. When I left Straight Canyon, the piñon and juniper trees thinned out and I found myself on a broad expanse of rolling grassland and sagebrush. I stood on the undulating 6,000-foot plateau that leads out to Cape Solitude. My trail lay less than a mile east of the boundary with the Navajo Lands. Farther east I could barely make out the rim of the Little Colorado River, a ½-mile-wide, 3,000-foot-deep fissure, but from where I walked, it appeared as a wisp of white limestone cliff peeking above the flats, visible only if you knew what to look for.

Before leaving the rim I had marked my route with an iPhone app, Gaia GPS. For my return hike Gaia would be invaluable as I retraced the trail in the dark and located my bike. In the daylight, the trail out was easy to follow. My GPS waypoints assured me that I didn't stray at trail junctions and the Mophie battery pack on my iPhone gave me power to spare for the 12-hour hike. Call me old-fashioned, but for backup I carried a map, compass and two extra lights.

The trail I followed led me through a gently rising ocean of gray sage, grasses and, ten miles distant, Cape Solitude. The ponderosa-forested rim of the Grand Canyon in the southwest and the distinct red mesa of Gold Hill to the east were all that distinguished this place from a prairie grassland.

My deadline to reach the Cape was sunset, so I had to push a hard pace. In the final hour I was still several miles from the Cape watching the sun creep ever closer to the horizon. I pushed myself into a steady easy run. I passed one false summit after another. Then with little warning the trail ended and I was at the edge of the 3,000-foot cliff looking down on the confluence. I had arrived at Cape Solitude ten minutes before sunset. I remembered what I once read by photographer Dan Winter in his

book, *Road to Seeing*: "I have found that I am able to see much more clearly when I am doing the least." It was that line or my beat-tired legs that I sat right down on the edge of the rim.

From my perch my eyes followed the deep green ribbon of the Colorado River until it disappeared into the northern reaches of Marble Canyon, and below my feet, under tiers of red sandstone benches, the milky-blue waters of the Little Colorado River blended with the waters of the Colorado River. My first photograph is the one you see here—my feet dangling over the abyss. As I framed the photo, I wondered if this was the same place Ed Abbey had stopped for his first view of the confluence. Looking up I saw the sun had set behind my left shoulder, causing the light of the bright sky and the dark canyon to find a balance. This is one of my favorite times of day to shoot in canyon country.

I walked along the rim looking for other vantage points, setting up my tripod and shooting as the canyons and river aligned into a composition. I explored the rim country of Cape Solitude until the stars shone in the moonless night. It wasn't until the light was gone that I knew my assignment was over. In the quickly chilling air, I put away the camera, ate a bar, drank a swig of water, pulled on a hat and gloves, and checked my headlamp. I got the southern bearing on my GPS and started walking away from the rim. It would be a seven-hour walk back to the road in the dark and the temperature was expected to drop to 15 degrees Fahrenheit.

Walking back, I realized that I had visited one of the most beautiful landscape panoramas to be found in the American Southwest. My walk to Cape Solitude got me to thinking about my passage through the landscape and standing on the rim where thousands of others had stood to enjoy the view, make some photos and then leave. In comparison, the proposed Grand Canyon confluence development would be as subtle as a nuclear bomb.

I know I will be back to this place again, and I can only hope when I return it will be as I left it. **OP**

To see more of **Bill Hatcher's** photography and read his blog, visit his website at www.billhatcher.com.



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[FAVORITE PLACES]

Text & Photography By Sean Maciejewski



LETCHWORTH STATE PARK

Genesee Region, New York

Location

Letchworth State Park is located 35 miles southwest of Rochester, New York, and 65 miles southeast of Buffalo, New York. The 14,350-acre park is situated on the west-ern side of the Genesee River.



A deep gorge with three major and several minor waterfalls is located within the boundaries of Letchworth. A 17-mile scenic road winds its way through the park. There are many scenic overlooks with ample parking that are handicap-accessible. For the more adventurous, 66 miles of seasonal hiking trails of various difficulties can be found at the park. To truly appreciate all that the park has to offer, plan on

spending at least a full day there. Seasonal cabins and a campground are onsite for those who wish to stay longer.

Weather

Classic Upstate New York weather consists of four seasons. Expect winter temperatures to average in the 20s, with light to moderate snowfall. Spring brings daytime temperatures in the mid-40s to 60s. Summer temperatures will be in the 70s to 80s. The fall can be the most challenging time of year, with very cool mornings, warming to the 50s and occasionally the 60s. Average rainfall amounts from April to October are 21.93 inches.

Photo Experience

Known as the Grand Canyon of the East, there are countless opportunities for fantastic photos here. A wide-angle lens is a must for shooting grand vistas such as the Great Bend or Inspiration Point areas. A telephoto lens such as a 70-200mm is essential to take along, especially if one is using the hiking trails. It can be a great lens for the abundant species of flora and fauna at the park. Both of these types of lenses are excellent choices for waterfall photography, as well. A polarizer would be the best filter for creating a "pop" of colors in the fall and a neutral-density filter for motion-blur effects with water. For tack-sharp images, bring a sturdy tripod.

Best Time

Each season brings its own unique qualities for getting that perfect shot. Fall is the most popular season, by far. The views against a colorful backdrop of orange, yellow and reds can be truly breathtaking. Weekends can

be especially crowded in the fall. Early morning, late evenings and weekdays can yield spectacular images, minus the crowds. Springtime can also be a rewarding time to shoot. Blooms of flowers add a splash of color against countless temporary waterfalls created by frequent rains. Summer sunshine can be used to capture rainbows produced from the mist of the falls. Winter is a stark contrast from the other seasons, as snow-covered trees and ice formations can make for a beautiful landscape.

Contact: New York State Office of Parks, Recreation and Historic Preservation, www.nysparks.com/parks/79/details.aspx. See more of Sean Maciejewski's photography at www.500px.com/smacieje.



Essential Gear...

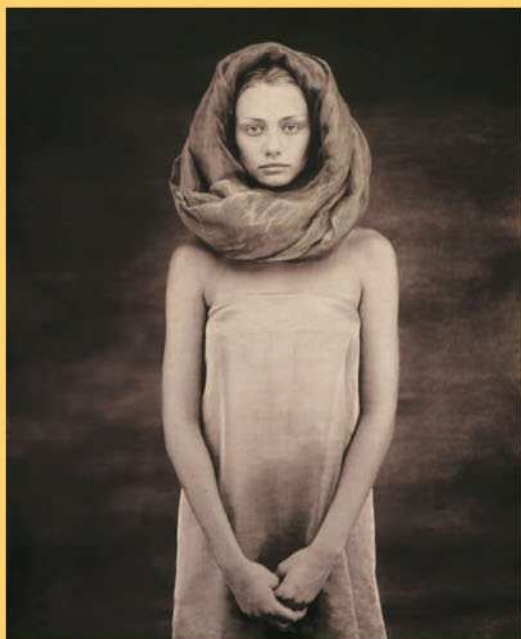
Keeping your gear to a minimum is always preferable on long day hikes exploring a new locale. A versatile, fast telezoom like the **Sigma APO 70-200mm f/2.8 EX DG OS HSM** can get you closer to distant subjects for compositional flexibility. The lens also features Sigma's Optical Stabilizer system to compensate for camera shake when you choose to shoot handheld. **Contact:** Sigma, www.sigmaphoto.com.

What's Your Favorite Place?

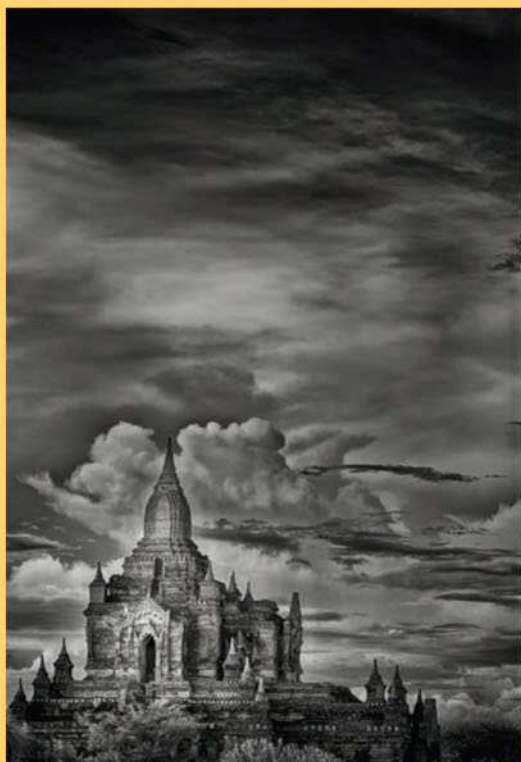


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▶▶ Winning Images From The Weekly Assignments At outdoorphotographer.com

Congratulations to Lace Andersen, Christopher Fridley and Valerie Millett. Theirs were the winning images from the recent The Tropics, Spring Flowers and Layers Assignments on outdoorphotographer.com. To participate in our Assignments galleries, visit www.outdoorphotographer.com/gallery/assignments.

1) PHOTOGRAPHER:
LACE ANDERSEN

EQUIPMENT: Canon EOS 5D Mark II,
Canon EF 16-35mm f/2.8L II USM,
tripod, polarizer

This photograph was taken in January 2014 at Ke'e Beach in Kauai, Hawaii. This beach can be popular with photographers when the surf is up in winter. My actual intent for the evening was to photograph waves down the coastline. Upon arrival, I was pleasantly surprised to see green moss growing on the rocks. This usually happens once or twice a year. Partially through my evening shoot, I quickly switched gears from photographing the waves to wide-angle seascapes. It proved to be a bit of a challenge removing my 100-400mm L lens without getting sea mist blown onto my camera sensor. The clouds and light beams were too dynamic to ignore with the glowing green moss in the foreground as the sun started to set. I processed this image in Lightroom and made all the basic adjustments to bring the RAW file back to life. I used Nik software to reduce noise and bring out additional tonal contrast. All resizing was done in Adobe Photoshop.





2) PHOTOGRAPHER: CHRISTOPHER FRIDLEY

EQUIPMENT: Panasonic Lumix DMC-G3, Lumix G Vario 14-42mm, Hoya polarizer, Hoya ND4 filter, Benro tripod

During early spring of this year, the temperatures were much higher than usual around Skagit County, Washington, home of the popular Skagit Valley Tulip Festival, and as a result, the flowers were maturing and being harvested weeks ahead of their usual schedule. Most of the local photography of the tulip fields I've seen are the daylight "snapshot" images that often lack the full essence of the area. I previsualized this image, but problems existed. Where I thought the tulips would be, they weren't; they had been harvested the afternoon before. While searching for another field, with sunrise quickly approaching, I drove along the narrow, bumpy farm roads, when I came across this field I didn't know existed. There was a thick band of low clouds over the foothills that gave me a little time to find an interesting perspective. After a quick setup in the muddy fields, I had seconds to capture the sunrise flickering over the dew-covered tulips. What I captured is what I feel is the realistic view of what the farmer witnesses every morning while out working the fields.



3) PHOTOGRAPHER: VALERIE MILLETT

EQUIPMENT: Canon EOS 5D Mark II, Canon EF 70-200mm, ProMaster Digital HGX circular polarizer, Induro carbon-fiber tripod, Induro BHD1 ballhead

I had never heard of the Blue Hills (often referred to as the Upper and Lower Blue Hills) of Utah until I read an article about a French photographer who had been named Photographer Of The Year in the UK. His images of this area more than piqued my curiosity, and I had to see it for myself. Knowing that this area in Southern Utah would color up in a brilliant way during the fall, I made plans to shoot here in early October. I love to photograph complex geological features, and this area proved to be incredibly beautiful. It's best to photograph during times of diffuse lighting or after a rain to capture the intense color saturation.

Luck Favors the

Kamil Tamiola brings the scientific method to alpine adventure photography

BY WILLIAM SAWALICH • PHOTOGRAPHY BY KAMIL TAMIOLA

“Little people, big mountains.” That’s how alpine adventure photographer Kamil Tamiola sums up his aesthetic. “I always explain it’s little people, big mountains and clouds. You can really break it down to these very simple things. But there is a very powerful message these photos convey. You can build massive, dramatic, epic stories out of this. Or you can put the guy in the ice cave and just illuminate him and use the ice as a reflector. You don’t have to do more. It’s a very simple visual language. Using scale, using weather conditions... All these tiny factors tell a story. People going on an epic journey in the big mountains. The clouds emphasize the drama and show the scale of the mountains and the challenge the climbers had.

“I believe photos are made of visual elements,” Tamiola says, “visual features. It’s a visual language that’s used to communicate things. For example, the expressiveness of the faces of the people, or using angles to communicate the story, like an establishing wide-angle scene, or a tight telephoto to bring in some action. It is all a visual language, and that’s why I call it visual storytelling.”

Unlike an editorial photographer who might accompany a climbing team as it surmounts a new obstacle, Tamiola puts his visual storytelling approach to work on commercial assignments. So he strives to eliminate chance and ensure the success of a shoot by bringing together the ideal subject in the perfect location at just the right time. It’s all about preparation.



Prepared





“I really spend a lot of time thinking about the location,” Tamiola says. “Ninety percent of the actual work is on preparation. I spend a lot of time looking for information, talking to mountain guides, telling them I’m looking for a place where I have a massive mountain, or a wall of granite, or a place where the glacier is very blue with lots of features and open space. And then we spend lots of time going over pictures and sometimes hiking to locations, because I’m 20 minutes from Mont Blanc. I tell people this is what I’ve found on Google images, this is where we are going to go, I believe that if the clouds will kick in we’ll have lots of drama, lots of interesting things happening.”

Tamiola takes a rigorous, almost scientific approach to preparation, and for good reason: he holds a Ph.D. in applied physics. The day we spoke he had just been granted a provisional patent for an

algorithm he developed to accurately calculate nighttime long exposures. When Tamiola speaks of his experiences testing cameras or lenses, or how the inverse square law factors into capturing nighttime imagery, or how a particular bit of software has been better engineered than another, he’s bringing to bear a Cambridge education in a field of study that applies directly to photography. When Kamil Tamiola talks, photographers should listen.

Tamiola is so diligent in preparing for his climbs because he’s a big believer in taking control of a photo shoot, not only for the sake of the dramatic images he’s set out to create but also so that he and every other member of his team makes it back safely.

“The beauty of working in any mountain environment,” he says, “is that getting up the mountain is 50% of the success. And the other 50% is getting

safely down. This applies not just to photography but to any activity which involves mountains. Statistically, 80% of the accidents in the high mountains happen on the descent. You’re tired, euphoria kicks in, you’re happy, ‘Alright, we wrapped it up, the weather was good!’ These accidents aren’t spectacular or dramatic. Armageddon style things don’t happen usually in the mountains. Mountains rarely fall apart. What happens is people do stupid things, like not clipping carabiners or not tying the ends of the rope and they rappel off the rope. Or unclipping on the glacier to go faster, and then they just enter a crevasse. Silly, ridiculous things. This is the other side of outdoor photography in the mountains.”

Weather is also a major risk factor. Storms arise in mere minutes and can trap climbers on a treacherous descent or pin them to a glacier as lightning



Kamil Tamiola works in locations where the weather is more than an aesthetic concern. He explains, "Weather is so important. In the mountains, especially the higher ones like the high Alps, which are the highest in this part of the world, the weather can change in 20 or 30 minutes in summer. The clouds can create very quickly. Some of the mountains, because of the vicinity to the Mediterranean Sea, have a very peculiar microclimate with, for example, electric storms building up quickly. And trust me, there is nothing worse than being stuck on the middle of an open field glacier, in the middle of a rolling electric storm. You have rolling thunder, the lightning hitting the glacier and the current propagating on the surface of the glacier and electrocuting people. Stupid! These are not avalanches. This type of stupid thing, like not checking the weather forecast properly, or not discussing with a mountain guide the day before, who was there, who can tell you, look, the weather is good, but it's too warm, can result in a catastrophe. Many people, mountaineers even, they start taking photos and not paying attention to conditions around. And when the storm comes there will be no helicopter rescue. Helicopters don't fly in storms!"

cascades all around. Being caught off guard by an impending storm is bush league, a definite no-no. It's rigorous preparation that gives Tamiola the absolute confidence in the success of a shoot and the safety of his team.

For the uninitiated, here is how Tamiola says mountaineering photographs are usually made. As part of a team of a handful of climbers, the photographer is roped to his colleagues for safety—just as they would be for any other climb. Because of their proximity, wide angle lenses are the order of the day; subjects are literally tethered within a few meters of the camera. On occasion he may reach an area where he can anchor himself to the mountain and ask advanced climbers to repeat a section of the climb for the sake of a photograph. This is when the expertise and professionalism of his team is especially important.

"This is what I explain to marketing people," Tamiola says. "I will be working with mountain professionals, people who are basically paid to do their job. And their job is to get my ass safely on and off the mountain, not to have casualties there. Because this is serious. People die doing this. And the second thing is, when I ask them for something, they just do it. They won't be like, oh, I don't feel like doing that."

The more technical a climb, the more safety equipment is needed, which limits the amount of photographic equipment Tamiola can carry. At more easily accessible locations he has used Phase One medium format digital cameras along with Elinchrom and Profoto strobes. Most of the time, though, he prefers a Canon EOS 5D Mark III with natural light—or, on rare occasions, a Speedlite.

For the image of a climber swinging

an ice axe as she ascends a sheer ice wall, Tamiola filled the backlit shadows with a Canon 580EX II. For a shot of an ice climber at night, the cave was illuminated with Elinchrom Quadra strobes—enabled, of course, by a fair amount of preparation.

"I went the day before to see how it looked," Tamiola explains. "I knew the climb, I knew it was stable, they're professional ice climbers, they told me they could climb it 200 times, so I looked at this hole from many angles. And then of course we go in the middle of the night, we bring all this junk, we try to keep it warm, because at -20C° batteries discharge immediately. And it's a completely different type of shoot, where I already know what I'm aiming for, and of course I can't see how it looks, but I know what I'm looking for, I know what the safety margin is, I know should the weather fail—and

the weather failed, because it started snowing on this shoot quite heavily—I know what to do. That’s exactly the difference between doing it on the professional level and going on a hippy happy adventure where maybe we’ll do it or not. No no no. If I can’t do it, I have a plan B. If the weather is bad here, plan B is to go there. If there’s no plan B, there must be plan C.”

Prepared as he may be, Tamiola refers again and again to his love for experimentation. It’s how he discovers new techniques and new locations and how just a few years ago he discovered a love for nighttime photography. Shortly thereafter he made an image that would go viral, bring him a modicum of internet fame and accelerate his photography career. It’s an image of a man outside his tent, in the middle of the night, preparing for a climb.

“The photo is pretty cool actually,” he says, “because it’s a blend of adventure and long exposure photography. There are lots of things happening. Lots of people accuse me that this photo has been Photoshopped completely, because they could not believe that you could combine long exposure photography of celestial objects, the starry skies, and having a person with a head torch and things happening. It has been taken in the very heart of the Mont Blanc basin. In the background you have one of the summits of Mont Blanc, and on it you have climbers with headlamps. The photo is taken exactly at three in the morning. Why? Because this is the moment that people start their climb to the summit. At that moment, you have to wake up, drag your ass from the tent, set up... and that’s what this guy is doing. This photo is for me the essence of what I like about mountaineering. It’s about understanding where you are, understanding how we need to do things, committing to it, dragging your ass out at night, when it’s very cold—really it’s annoyingly cold—and you look at the sky and the stars and it’s surreal. It’s just surreal.”

Tamiola edited this image as he does all of his photographs, relying on what he calls the absolute best RAW processing algorithm on the market.

“The whole processing happens in Capture One,” he says. “It’s absolutely the best when it comes to debayering and really squeezing the last bit of color out of the files. And I say this as a scientist.



Kamil Tamiola's Gear

- Canon EOS 5D Mark III
- Canon EF 16-35mm f/2.8L II
- Canon EF 24-105mm f/4L IS
- Canon EF 24mm f/1.4L II
- Canon EF 17-40mm f/4L
- Canon EF 70-200mm f/4L IS
- Profoto B1s
- Elinchrom Quadra RX
- Canon EOS C100 for motion work
- DitoGear OmniHead (6-axis motion-controlled head system) attached to Cinevate heavy-duty sliders for time-lapse work
- G-Technology G|DRIVE ev ATC waterproof external hard drive
- Mamiya 645DF+ with Phase One IQ250 or IQ280 backs
- 28mm, 40-80mm and 80mm Schneider-Kreuznach lenses
- Phase One Capture One 8 Pro software

This is why when Phase One approached me it wasn’t about money or getting a Phase One camera to work with, or a self-marketing thing. I said, ‘I’ve used your software and it’s awesome, and if I could be associated with it, yes please.’ It’s not the best software, it’s actually quite slow, but [technically speaking] it gets you far more. It’s really advanced.”

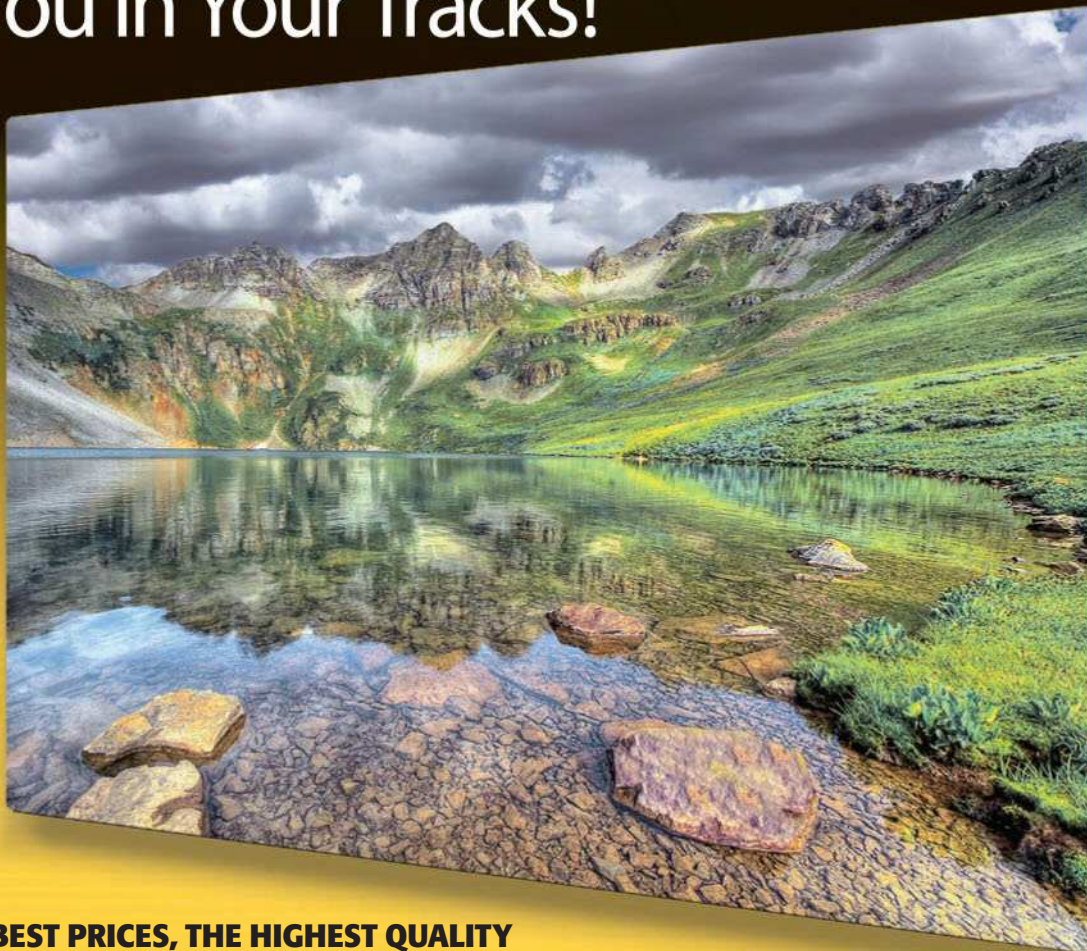
The scientist turned photographer is confident in his findings because of his testing, which again brings him back to that love of experimentation. He may focus his efforts on preparation and safety,

but this is all in service of an idea—so that when he’s on location in the Alps, up before the sun, shivering cold and monitoring a changing weather pattern, he’s set himself up for success. By constructing a framework he is free to improvise, to experiment with all of the variables of weather, lens, lighting and composition. If it weren’t for experimenting, he may not be a mountain photographer at all. He might still be in a lab in the Netherlands, doing whatever it is applied physicists do, working with a photospectrometer instead of a DSLR. If not for the love of experimentation that ultimately led to a career change, the world of Alpine adventure visual storytelling would be missing a strong, clear voice.

“For me,” he says, “photography is about experimenting. And this applies the same to outdoor photography of any sort. I always explain it’s not just about a powerful visual that tells a story, but it’s about experimenting—not just with the settings of the camera, but with the weather, with the landscape, or with the scenarios, or with lights. This is what excites me. I love being in the mountains. That’s why we live in the Alps. But at the end of the day, you know it’s always very exciting when you’re in a new place and you can really experiment. With bad weather kicking in, you’ve planned a nice photo shoot and you just have to say okay, with this weather, what can we do?” **OP**

To see more of **Kamil Tamiola’s** photography, visit his website at www.alpine-photography.com.

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Aspen Photo Art by Larry Bennett

Clear Lake Colorado sets above timberline, about 13,000 ft. close to the old mining town of Silverton. This image is a 7 exposure HDR, shot early morning, in the Summer of 2012, with 24-70mm zoom on a Canon 7D.

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Monument Cove

Acadia National Park, Maine

This year is turning into the year where I'm knocking off shots that I had been after for a couple of years, including this one at Monument Cove in Acadia National Park, Maine. And, what better way to shoot it than with the Nikon D810A? Note that the greenish color in the sky is from airglow, a natural phenomenon that occurs in the atmosphere when, among other things, cosmic rays interact with particles and produce green and magenta visible light. The light is hard to see with the naked eye, but is easily captured on-camera when you're in a dark enough area and the airglow is highly active that night.

My initial impression is that the Nikon D810A is an amazing camera for landscape astrophotography, as you'd expect, given that it's designed with astrophotography features. The biggest thing, for me, is the improved high ISO performance. It looks like the D810A is on par with the D750 in terms of high ISO performance. I'd say the D750 is about a stop better with noise over the D810, and the D810A seems to match that. So

you're getting very good high ISO performance with a 36-megapixel sensor and no anti-aliasing filter!

Another nice feature is the new M* manual mode that lets you choose exposure times greater than 30 seconds. You get 60, 120, 240, 300, 600 and 900 options. If you only need those times for your long-exposure foreground shots, then you can get by without a remote if you enable exposure delay mode on the camera (to delay the shutter after the mirror snaps up) and gently press the shutter button on the camera. The best way is still to use a remote trigger with mirror lock-up or exposure delay mode.

The IR cut filter definitely makes nebulae pop. The sensor picks up more red tones for nebulae, and there's a dramatic difference over regular cameras. It's important to remember that the natural color, that is, the color that our eyes would see with a telescope, isn't the increased red color with the IR filter, but it's nice to make the nebulae pop in the image and is often a standard practice of deep space imaging.

This is a blend of 12 exposures — 10

star exposures stacked for the sky and two foreground exposures. The sky exposures were all taken at ISO 12800 for 10 seconds each, and stacked and blended with Starry Landscape Stacker for Mac for pinpoint stars and low noise. The foreground exposures were taken at ISO 1600 for 15 minutes each using different focus points for depth-of-field blending. All shots were taken with a preproduction sample Nikon D810A provided by Nikon and a NIKKOR 14-24mm f/2.8 lens at 14mm and f/2.8.

You can learn more about how I edit photos like this in my astrophotography editing video tutorial. My "Landscape Astrophotography Editing Workflow" video features over two hours of detailed information regarding my personal workflow for editing landscape astrophotography images.

*To learn more about the video and to purchase it, visit www.adamwoodworth.com/video-tutorials. To see more of **Adam Woodworth's** work, visit his website at www.adamwoodworth.com.*



A



picture is worth a 1000 words. A truism if there ever was one. While all images tell a story some do it far better than others. Why is this so? If we create images not only for our own enjoyment but also for the enjoyment of others then it is necessary to make those visual stories the strongest possible. An image that does not contain a strong story loses its distinctiveness and is visually relegated to the “ordinary” category.

To enhance the visual appeal of an image, we need to push beyond the concept of a photograph as simply a slice of time or a visual document. This is where our imagination comes into play as it transcends these concepts to create the idea or story point of the image you will

How **2** >>

BUILDING

How to think past pretty pictures to make images that engage the viewer and tell a story

TEXT & PHOTOGRAPHY BY MARK LISSICK



A full-page photograph of a sunset at Lake Tahoe. The sky is a gradient of orange, yellow, and blue, with the sun low on the horizon. The water is calm, reflecting the sky. Several large, dark rocks are scattered in the water. In the lower-left foreground, a lone duck is swimming, leaving a small wake behind it. The word "STORIES" is written in large, bold, yellow capital letters across the bottom left of the image.

STORIES

*Lake Tahoe Sunset and Duck,
Lake Tahoe, Nevada*

*Though small in comparison
to the rest of the scene it is
the lone duck around which
the story is centered.*

*• Canon EOS 5D, Canon EF
24-70mm f/2.8L II lens,
5-stop soft edge Singh-Ray
graduated ND filter, Gitzo
tripod, Foba ballhead*

North Pond, Bosque del Apache National Wildlife Refuge, New Mexico
In order to create a sense of place and capture the peaceful essence of the scene, I ditched the super telephoto in favor of a wide-angle perspective.

• *Canon EOS 5D, Canon EF 24-70mm f/2.8L II lens, 5-stop soft edge Singh-Ray graduated ND filter, Gitzo tripod, Foba ballhead*

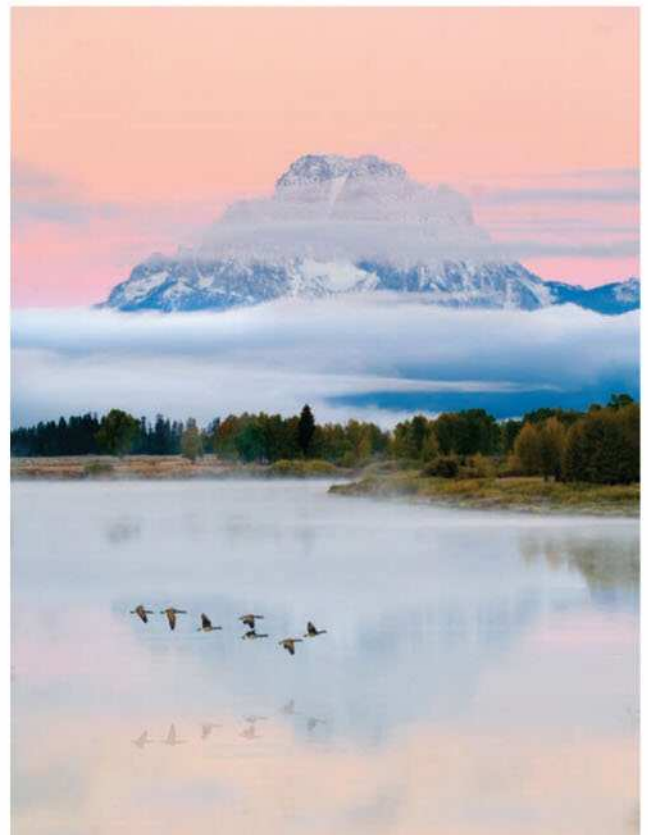


try to construct in the camera. Photography and reality have been inextricably linked since its inception, but we have come to understand that the definition of the reality created in a photograph is rather arbitrary.

Whether creating or looking at a photograph, both photographer and viewer utilize their imaginations to formulate their own interpretations. Our imagination tends to produce the strongest images when it is triggered by strong emotional responses. We all have emotions and a compelling image can pull them from us in the same way a moth is pulled towards a flame. This is the magic of an image that tells a story. As the creators of visual works, our challenge is to turn our photography into the art of transforming a simple image into a story — a story that can speak to the minds and imaginations of those who look upon our work. Producing an image that does this well requires that we create a composition that first draws the viewer's attention to the story and then allows them to be influenced by the pictorial narrative.

Mount Moran and the Snake River, Grand Teton National Park, Wyoming
While the pre-dawn light, weather and muted colors combined to make a beautiful setting and mood, it is the mountain, river and geese that create the sense of place and story.

• *Canon EOS 5D, Canon EF 70-200mm f/2.8L II lens, 2-stop soft edge Singh-Ray graduated ND filter, Gitzo tripod, Foba ballhead*





Black-browed Albatross colony, Saunder Island, Falkland Islands

Though endangered, the albatross were tolerant enough to permit a close approach to capture both nesting and flight activity with the colony.

•Canon EOS 5D, Canon EF 16-35mm f/2.8L II lens, 2-stop Singh-Ray soft edge graduated ND filter, Gitzo tripod, Foba ballhead

This starts with the need to keep the composition as simple and as visually uncluttered as possible. One of the benefits that come from the use of simplicity is the development of a narrative. Eliminate just enough visual information and the viewer will try to determine what happened before and what happened after the picture was created.

Determining what to use in a composition is first influenced by our perceptions of the contents of the world around us. How we perceive a scene is a function of how our brains process the visual information coming from our eyes. The result of this processing is that we perceive images and subjects as a whole rather than in parts. This method of processing has a direct impact on our photographic creativity as we interpret a scene based on the results of our brains combining the “parts” and giving us a visual “whole.” While this is what we may see, what we are really responding to is the parts, the building blocks that came together to make the whole. As creative artists it is imperative that, as we visualize, we become aware of the components that really make up the scene before us. These visual elements: line, shape, texture, color, etc. are to photography what grammar is to language. Without an understanding of the former you cannot have the latter or at least one that can be understood.

It is difficult for us to abstract down to such parts as we are taught to see the obvious. This can take some effort as we filter out much of what we see and hear, reducing the incoming stimulus to our senses so that we are not overly distracted. In many ways this is not such a bad thing—it’s important to be aware of one’s environment, but you don’t need to process every detail, just the most important ones. While it is important to place labels on things to help us identify what it is we are seeing, this simple act of labeling begins to limit our awareness of the essence of the thing we have labeled.



Gentoo Penguin, Sea Lion Island, Falkland Islands

While the Gentoo penguin anchored the scene, the graphic strength of its shadow takes center stage.

•Canon EOS 5D, Canon EF 24-70mm f/2.8L II lens, Gitzo tripod, Foba ballhead



Sea Stack & Full Moon, Bandon Beach, Oregon
An extended exposure time softened the waves and set the mood but worked against the chance of including any shorebirds, except the one that paused for dinner, thus adding another level of magic to the image.

• Canon EOS 5D, Canon EF 70-200mm f/2.8L II lens, Gitzo tripod, Foba ballhead

To enhance our creativity it is important for us to see through the obvious in order to understand the nature of a subject or scene, for it is that essence that really stirred our interest to begin with. You will also find that by turning off the filters you will begin to see your world with a new set of eyes. Plain, ordinary subjects like a plant surrounded by water can become marvelous to behold and fodder for the creative imagination.

If photographing subjects such as a cityscape, we need to look beyond the gross forms or shapes of the buildings and become aware of the fact that they also consist of more subtle design elements that are much less tangible and in some cases not even material. These elements are what combine to give substance and character to the subject as a whole. These must be the real building blocks of your composition as they are the true essence of your subject or theme and end up playing a greater role in determining a composition's visual strength or weakness than the gross forms of which they are a part.

This is evident in the Queen Anne's lace image. At first glance it is a tall plant covered with white blooms that umbrella out from the ends of the stems. While the large mass of white was the first thing I saw, it was the graphic array of lines that was the real essence of the scene. Photographing upwards against a cloudy sky and overexposing two stops visually removed the obvious and emphasized the merely obvious. The result was a graphic element-based image that was visually

stronger than one of the overall plant.

Another downside to being conditioned to see only the obvious is that we tend to ignore aspects of a scene that have no physical properties. These aspects generally come in the form of tones—shadows and glare spots—or colors. Ignoring these physical intangibles can lead to images with unwanted distractions in the composition. Being aware of them though can create the option of choosing how to use them as part of the compositional design. Take a look at the image of the Gentoo penguin and its shadow. While the shadow has no physical properties it has visual properties that our brains treat as physical entities. Knowing this, I deliberately went about creating an image that made use of the shadow's design properties.

Perceiving these visual elements early in the creative process helps us to make decisions concerning perspective, use of space and relationships, as well as which focal length and depth-of-field to use. They become the building blocks we use to construct the image in the camera that our imagination has already created in our minds. Effectively combining the right set of design elements allows a viewer to process the visual information contained within just as if they were viewing the scene directly, just without all of the visual clutter. When the visual grammar of an image is properly structured, its imagery as well as its message is strengthened.

Besides both these physical and visual building blocks there is one other ele-



Grass Reflection, Norris Geyser Basin, Yellowstone National Park, Wyoming
I turned a simple clump of grass and reflection into an abstract to force the viewer to establish their own interpretations and away from seeing just a definable object.

• Canon EOS 5D, Canon EF 70-200mm f/2.8L II lens, Canon 2x teleconverter, Gitzo tripod, Foba ballhead

ment that should be considered in story building. It is one that I feel that has the strongest connection to our emotions: mood. Mood can be created via such aspects as exposure choices, weather, facial expressions and dominant color. If they are incorporated in the proper degree to match the idea or theme of the image then they serve to focus, refine, and enhance the story.

You'll know when you have created an image with visual strength, as it will ignite emotions by instantly passing on the idea, message and narration so that the viewer feels the same emotions and moods that were present when you created the image. OP

See more of **Mark Lissick's** photography, check out his books and sign up for workshops by visiting his website at www.wildlightnaturephotography.com.

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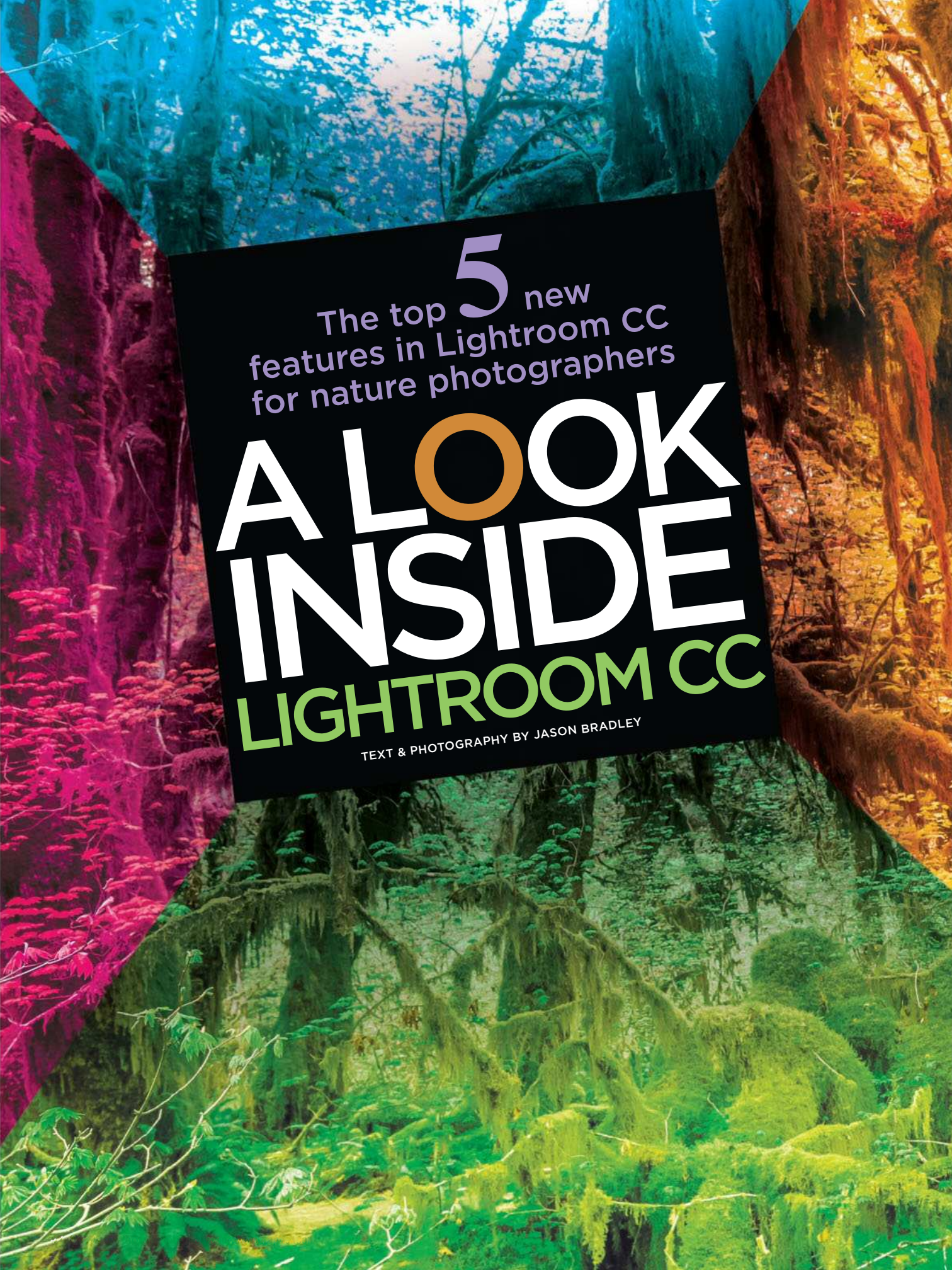
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The background is a composite of four forest photographs. The top-left is a blue-tinted forest, the top-right is a warm orange-toned forest, the bottom-left shows bright pink/red foliage, and the bottom-right is a lush green forest with moss-covered trees. A black rectangular box is centered over the image, containing white and colored text.

The top **5** new
features in Lightroom CC
for nature photographers

A LOOK INSIDE LIGHTROOM CC

TEXT & PHOTOGRAPHY BY JASON BRADLEY

Adobe released the long-anticipated Lightroom 6; or is it Lightroom CC, or is it both? In fact, Lightroom is now branded in two distinct ways, but the offering is not actually new. Functionally, there is no difference between the two, other than that Lightroom CC provides access to Lightroom Mobile and Creative Cloud workflows, and Lightroom 6 does not. However, over time their paths will diverge. As time goes on, Adobe will begin to stuff new features into Lightroom CC that will not be added to Lightroom 6. So Adobe thought it would be a good idea to make the two camps easier for consumers to distinguish and just brand them differently. It's not the beginning of the end for those that want to purchase a perpetual license, but Adobe does hope consumers eventually see that CC is the way to go, and that the users' experience will ultimately be richer with the Creative Cloud. But as I said, this new offering isn't really a new offering, only new packaging. So what is? What are some of the new features important to us nature shooters in, well, let's call it Lightroom CC?

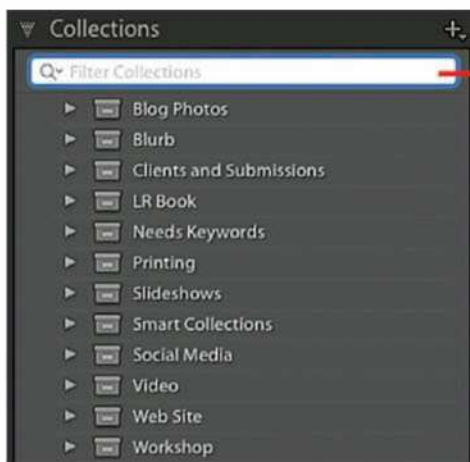


Figure 1 With the new Collections Panel Filter, simply type in the collection you want to locate and Lightroom will narrow down your search.

Lightroom CC is actually chock-full of new features that I think are as universally useful to outdoor photographers as they are to studio photographers. From changes in how to interact with keywords to GPU acceleration (a feature that speeds up the Develop Module), the wait for this release has paid off in many ways. Still, most of the features are minor, while major additions to Lightroom CC such as Facial Recognition may not be indispensable for us landscape and wildlife photographers. And so, please allow me to distill what I think are the Top 5 new features we outdoor shooters will truly appreciate—plus a few extras at the end.



Figure 2 The flaw inherent with the Gradient Filter has been that it can only adjust in a straight line. Notice the dark areas covering the mountain-tops—an unwanted effect with this development.

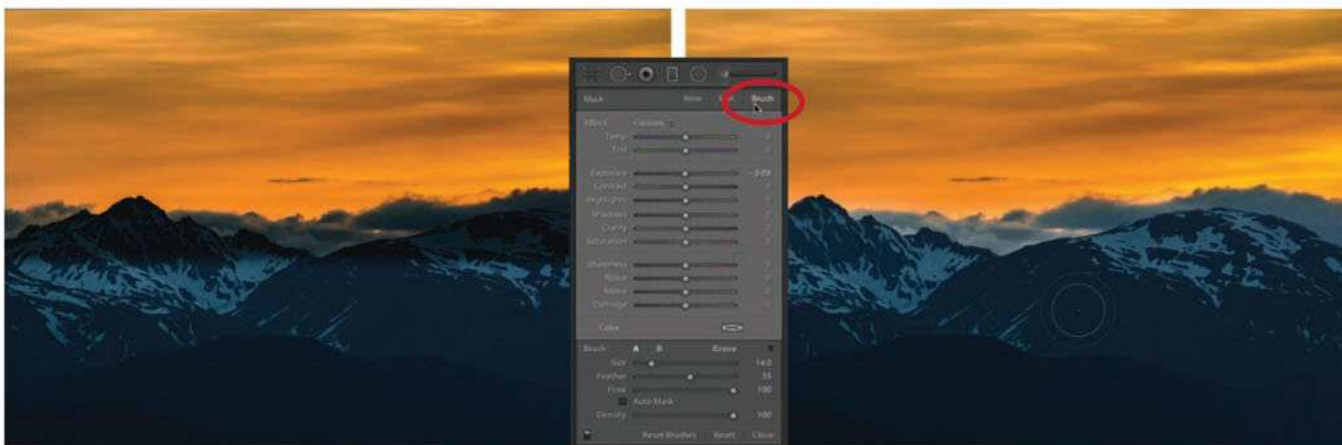


Figure 3 Here is a before and after view of a Gradient Filter line that was modified to fit the contours of the given landscape.

Filtering through Collections

Nature photographers love Lightroom Collections. They allow us to design different groups from our image Library to help keep us organized for output, or to maintain categorical organization. But regardless of the workflow, I've also seen many nature photographers create a daunting number of Collections over time. I for one am guilty of this, and since Collections are a major tool in my workflow, sifting through our Collections has been tedious.

To the rescue is a new feature in Lightroom CC that's considered a minor edition, but it has made a major impact on how I engage my Collections. Simply put, Adobe added the ability to filter through our Collections (see Figure 1). To access the filter, click the "+" symbol on the Collections Panel header and select Show Collection Filter.

Universal Access to the Adjustment Brush

Localized correction tools in the Lightroom Develop Module such as the Adjustment Brush, the Radial Filter and the Gradient Filter, are powerful instruments. But until now, the Radial Filter and the Gradient Filter have been tools primarily for broad stroke adjustments. For example, if you wanted to darken tones above a horizon line, you could use the Gradient Filter to adjust everything above the adjustment placed on your image, as shown in Figure 2. Unfortunately, the Gradient Filter has a flaw—the areas we want to adjust are not always straight lines, but often the landscapes we encounter have shape. Lightroom CC solves this by allowing us to change the shape of the straight line to whatever we need (see Figure 3).

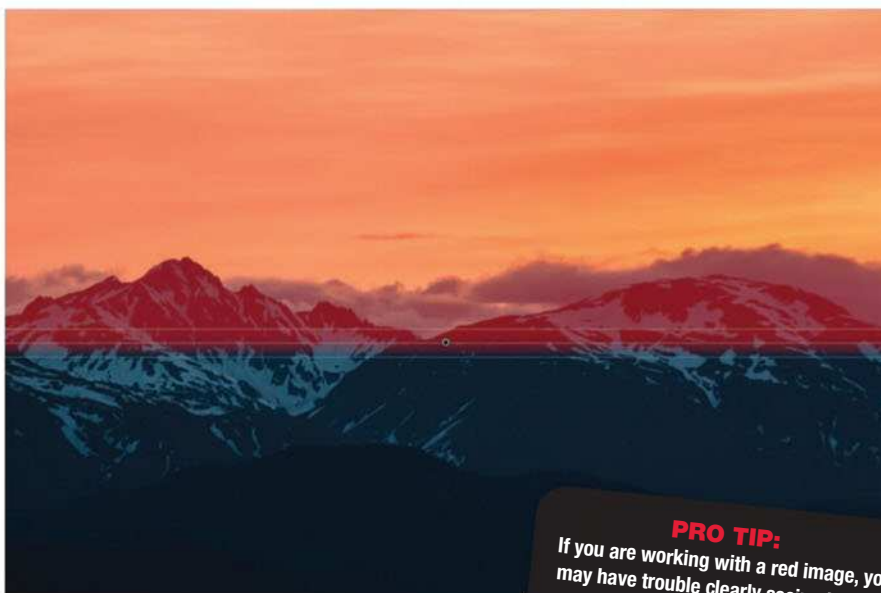


Figure 4 Mask Overlays are now available with the Gradient Filter and the Radial Filter (hit the "O" key to access). Turning on Mask Overlay while detailing localized correction filters with the Adjustment Brush will aid with performing precise adjustments.

PRO TIP:
If you are working with a red image, you may have trouble clearly seeing the red mask. Try holding down the Shift key while tapping the "O" key for your Mask Overlay. The color of the mask will then cycle between red, green and white.

In the upper right corner of the Gradient Filter and the Radial Filter is the added Brush button. If you desire to erase areas of an adjustment, select the Brush and then brush over unwanted adjustments while holding down the Alt (PC users) or Option key (Mac users). You can also first hit the Erase button located at the bottom of the panel after the Brush has been activated. Needless to say, you can also add adjustments to other areas of your image with the Brush without having to create another adjustment. When using the Radial Filter, you can take advantage of this feature to create custom vignettes that go way beyond the capabilities of the Post Crop Vignette tool in the Effects Panel.



Figure 5 A before and after view of images stitched together using Lightroom CC's new Photo Merge Panorama feature.

Universal Access to Mask Overlays

For number three in this countdown, Adobe has added a feature that is, in a way, an extension of the previous feature. Or at the very least, they work well in concert with one other. One of the tools that's been available with the Adjustment Brush is the ability to overlay a red mask over an image to clearly identify where we've applied and where we haven't applied the Brush. The Mask Overlay then becomes handy for dialing in the details around the edges of an adjustment. It helps us color in the lines, if you will. Of course, we can access the Mask Overlay in any localized correction now by tapping on the O key (see Figure 4).

Stitching Panoramas

The new Photo Merge Panorama feature is terribly exciting for a couple of reasons. First of all, I'm thrilled with the idea of keeping everything in Lightroom. The less I have to use 3rd party programs in my workflow, the faster I am and the easier my organization gets. Secondly, and frankly most importantly, how Lightroom stitches panoramas is different than any other program. It actually generates a raw file while stitching. Other programs require all files be first processed as a TIFF or JPEG before stitching. But with Photo Merge Panorama, no processing is

required and a DNG (Adobe's raw file format) file is the final result. Furthermore, the implication to one's workflow because Lightroom generates a raw file is also exciting. Before, it made a lot of sense to develop the file as much as we could before stitching, in order to take full advantage of the benefits of raw processing. But since we are generating a stitched raw file, we can develop after. Exciting, indeed!

Stitching images in Lightroom is also easy. First, select a set of images without concern for order and go to the Photo Menu > Photo Merge > Panorama (quick keys Shift M), as shown in Figure 6. This launches the Merge To Panorama Dialog offering



Figure 6 To launch the Photo Merge Panorama Dialog, use quick keys Control M, or go through the main menu.

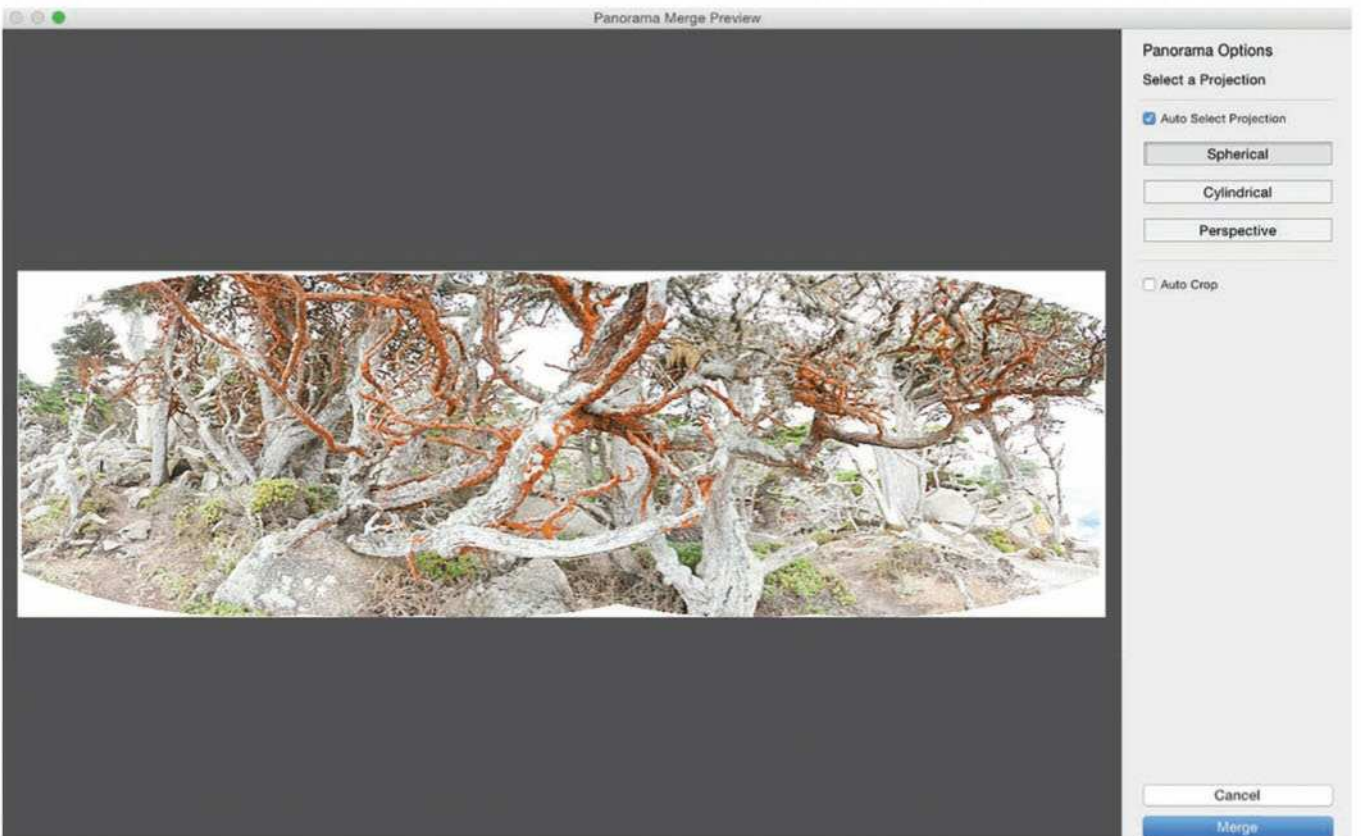


Figure 7 The Photo Merge Panorama settings are simple. The only two settings to consider are to choose which projection method you want, and to check the box to Auto Crop.

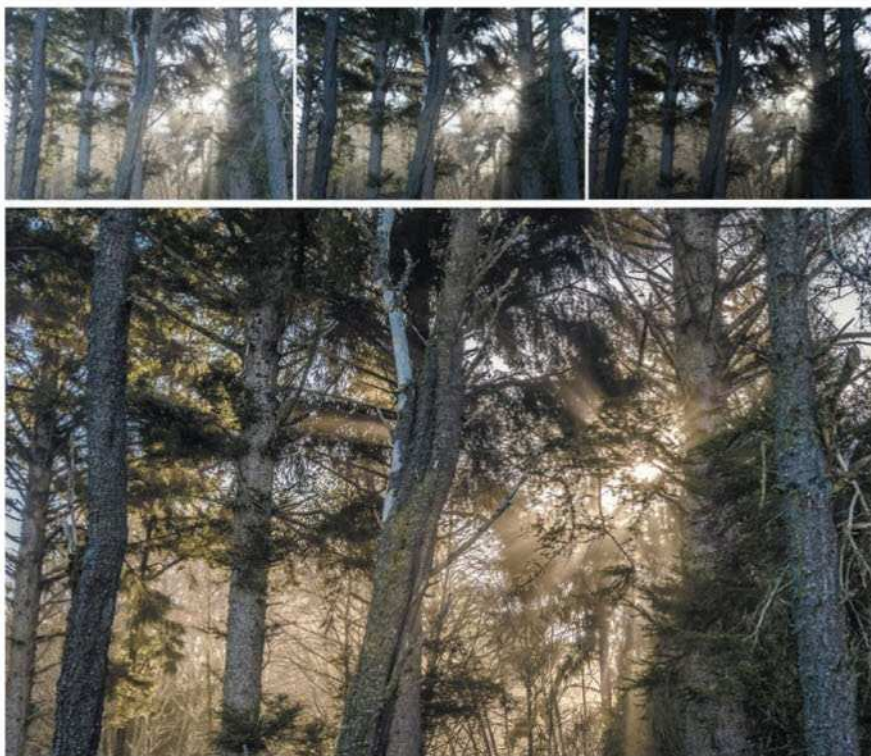


Figure 8 A before and after view of three images blended to create an HDR file.

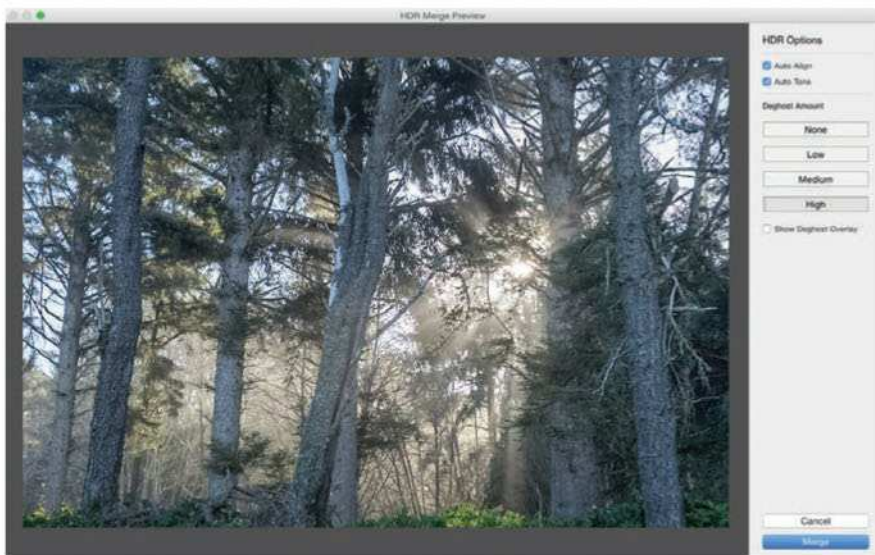


Figure 9 With the Photo Merge HDR dialog (quick key Control H to launch), you can choose to Auto Align, Auto Tone, and set your Deghost amount.

Five More Lightroom CC Features

Facial Recognition: A fun new tool that identifies images with faces and makes tagging people an easier step of your workflow.

GPU Acceleration: Lightroom now engages the GPU (Graphics Processing Unit) to speed up interactive image editing. Basically, Lightroom can give you more feedback on the changes you're making immediately.

Advanced Video Slideshows: There are a number of improvements to the Slideshow

Module, but most notable are the additions of "Ken Burns" Pan & Zoom affects, and the ability to add and sync multiple music tracks to your slideshow.

Moving Adjustment Brush Edits: You can now freely reposition your Adjustment Brush edits by selecting and repositioning your edit pins.

Zipped Backups: All of your catalog backups are now Zipped to save space, but most importantly to avoid any accidental opening of your backup catalogs.

different projection options such as Perspective, Cylindrical and Spherical—you can tell Lightroom to Auto Select Projection (see Figure 7). After you've established your settings, hit the Complete Merge button in the lower right corner of the dialog, and watch Lightroom do the rest.

Blending Images for HDR

In addition to Photo Merge Panorama, Lightroom has also added the ability to blend images to create HDR files. Akin to Lightroom's unique approach to stitching panoramas, Photo Merge HDR blends images and also generates a DNG. Thus, the workflow implications are also similar in that Develop After Photos Have Been Merged is now a viable option.

Accessing Photo Merge HDR is also similar to Photo Merge Panorama. First select a set of images for blending, and then go to the Photo Menu > Photo Merge > HDR (refer to Figure 6), or use the quick keys Shift H. This launches the Photo Merge HDR Dialog, as shown in Figure 9, and here there are only three settings to choose from. You can choose to Auto Align your photos (I suggest having this checked for anything hand-held), Auto Tone, or you can choose the magnitude of your deghosting engine. Simply hit Merge on the bottom right when ready and Lightroom will generate your HDR DNG file.

Obviously, these Top 5 features aren't the only new features to Lightroom CC, and your personal favorites may not have even made it to the list. So with this in mind, here is a list of a few extras, or honorable mentions that I think are certainly worth your time to explore and learn. For a complete list of Lightroom's new features with links to instructional videos, visit www.adobe.com/products/photoshop-lightroom/features.html. **OP**

Jason Bradley is a nature and underwater photographer from Monterey, California. He owns and operates Bradley Photographic Print Services and Bradley Photographic Workshops, and has authored the upcoming book, "Creative Workflow in Lightroom" by Focal Press. To see more of Bradley's work, go to BradleyPhotographic.com.



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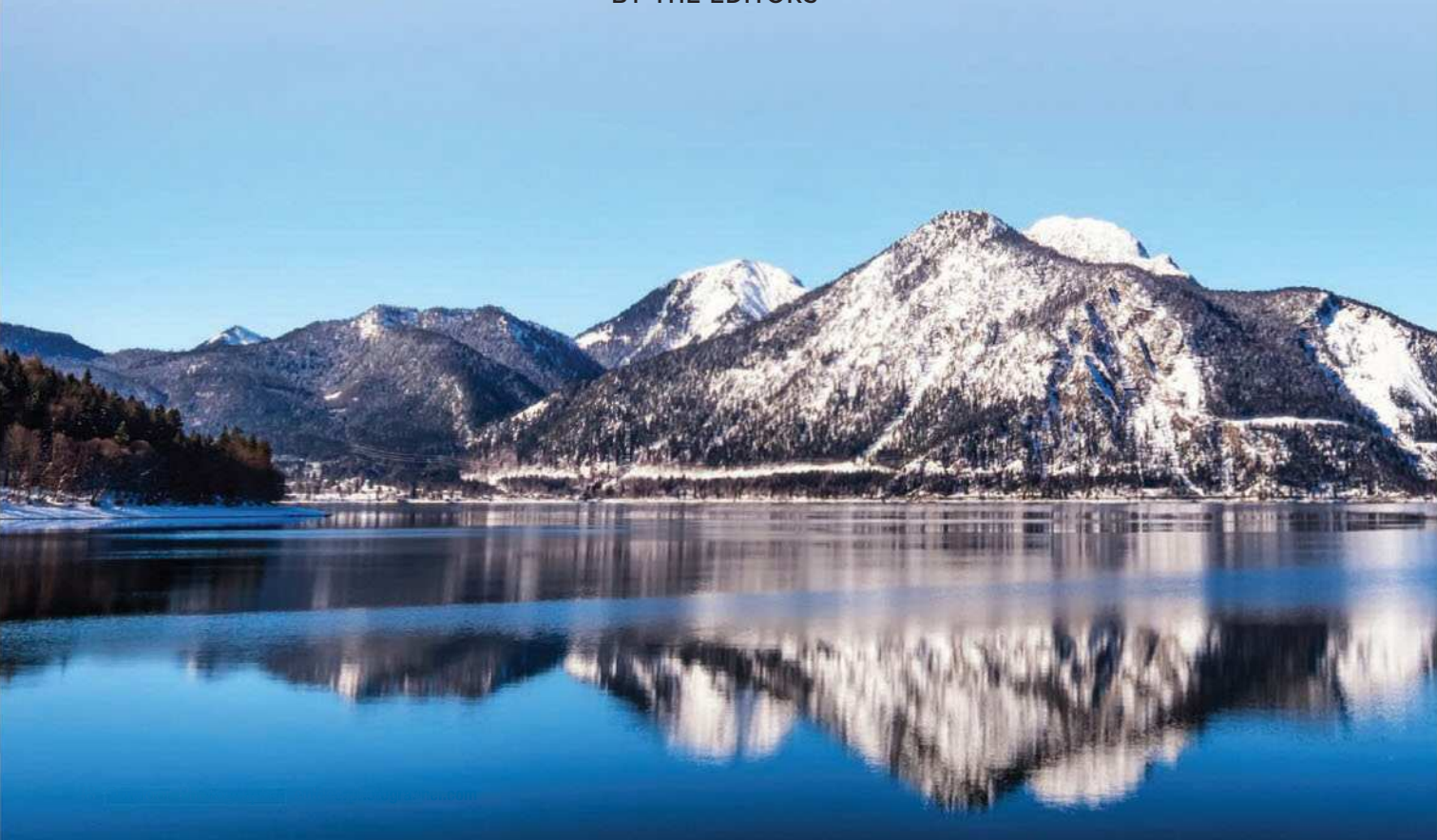


WHAT'S IN A “PRO” LENS



We look at the pros and
cons of pro and non-pro
lenses to help you make
your decision on substance
rather than a badge

BY THE EDITORS





The term “pro lens” gets tossed around a lot in nature photography circles, but what exactly does it mean? What makes one lens fit for pros while another is relegated for amateur shooters? Which is really best for you and your style of photography?

Generally, pro lenses deliver better optical performance than lesser lenses, quicker and more accurate autofocus, and are more ruggedly built. They also offer the fastest maximum apertures, so you can use lower ISO settings or shoot in dimmer light. On the downside, pro lenses tend to be much bulkier than consumer lenses, and usually they cost considerably more.

Consumer lenses are the opposite: Generally, they’re not as sharp, have more distortion, don’t autofocus as quickly or accurately, and are slower and so require higher ISO settings or brighter light. But the consumer lenses are capable, and also much more compact and much less costly, thus enabling photographers who don’t have pro budgets to have access to a wide range of focal lengths. Often pros use them when they want to travel light.

We’ll break down the key features and characteristics to help you make the best decisions when choosing your lenses of choice. The results might surprise you.



Optical Performance

Pro lenses perform better than consumer models largely because the pro lenses have superior optical designs and elements. While extra-low-dispersion and aspherical elements can be found even in \$500 consumer superzooms, the ones found in pro lenses tend to be of glass rather than plastic and are more precisely manufactured. The pro lenses are better constructed to tighter tolerances and are less likely to be troubled by production flaws than mass-produced consumer optics. This is not to imply that consumer lenses are not good, just that pro lenses are frequently better.

AF Performance

Pro lenses also provide more superior AF performance than consumer lenses, because the pro items use quicker, more powerful AF motors and processors and more effective AF algorithms. To keep cost down, consumer lenses use less-capable AF motors and internal processors. Again, this is not to say consumer lens AF performance is not good, just that the pro lenses are typically faster.

Size

The Canon EF 300mm f/2.8L IS II USM pro supertelephoto lens measures 5.0x9.8 inches and weighs 5.2 pounds. Canon's EF 300mm f/4L IS USM consumer supertele measures 3.5x8.7 inches and weighs 2.6 pounds. (We're singling out Canon here, but the relationships are pretty much



the same for other brands.) That means the consumer lens is hand-holdable for most people, while the 300mm f/2.8 is not. We know people who hand-hold the 300/2.8, including normal-sized ladies, but most photographers will not enjoy doing that.

Lens Speed

F/2.8 is a stop faster than f/4 – not much for some situations, but it means in a given light level you can set one-stop lower ISO, or use a shutter speed twice as fast, with the f/2.8 than with the f/4 lens. Mid- and high-end DSLRs also have AF systems that can deliver higher focusing accuracy with f/2.8 lenses than with slower ones. That has nothing to do with brightness, but rather with the wider “base” of the f/2.8 AF sensor. The wider aperture also limits depth of field more, handy when doing selective-focus images to concentrate the viewer's attention on a specific portion of a subject.

A faster lens also provides a brighter viewfinder image, making it easier to compose photos and focus manually, especially in dim light. In live-view mode, a faster lens can deliver a less-noisy live image.

Of course, a faster lens needs a larger front element, which makes for a bulkier and more costly lens. And it's more difficult to correct all aberrations and distortions in a faster lens, so sometimes a pro f/4 lens will be sharper than its f/2.8 counterpart.

All-in-One Zooms

All-in-one zooms—those 18-200mm to 18-300mm wide-range wonders—offer the benefits on wide-angle to telephoto focal lengths in a single package, close focusing, compact size and low cost. And for these reasons, you probably should have one in your lens collection—especially if you travel.

So what's the downside? Well, it's all but impossible to completely correct for all possible aberrations, distortions and the like for a wide range of focal lengths in a single lens. So the all-in-one zooms tend to show more distortion and aberrations, and less sharpness and contrast than prime lenses, or shorter-range zooms. The wide-range zooms also tend to be on the slowish side—f/3.5 at their widest focal length down to f/5.6 or f/6.3 at their longest. But most these days incorporate image stabilization, which helps offset the slower maximum apertures, especially with stationary subjects.

Bottom line: You're not going to get the most out of your 50MP EOS 5DS or 36MP Nikon D810 with a \$500 consumer 18-200mm zoom, but when you want to be ready to handle just about any subject that comes along quickly while traveling light, you can't beat the all-in-one zoom.





The Supertele Zooms

We now have three 150-600mm super-telephoto zooms, two selling for just over \$1000 (Sigma 150-600mm f/5-6.3 | C and Tamron SP 150-600mm f/5-6.3), the other for just under \$2000 (Sigma 150-600mm f/5-6.3 | S). That's a whole lot more affordable than the \$9700-\$11,500 for 600mm lenses from the major DSLR manufacturers, bringing lots of supertelephoto reach to a lot more photographers. Of course, the zooms do not match the costly pro 600s in optical or AF performance, but they are surprisingly good for the cost, much less bulky, and focus closer, which can be an advantage when a bird lands on a branch 10 feet away.



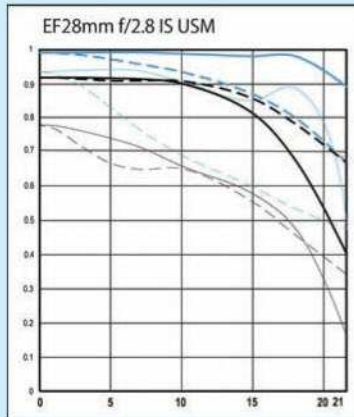
Prime Lenses

The word “prime” means “extremely good,” so who wouldn’t want prime lenses? Well, prime in lens talk means single-focal-length, as opposed to zooms. It’s much easier for lens designers to correct aberrations and distortions for a single focal length than for a whole range of focal lengths, so primes tend to be sharper and more free of distortions and aberrations than zoom lenses. Pro prime lenses tend to be even sharper, better built and have better AF performance. But a series of prime lenses costs a lot more than one to three zooms, takes up more space in your camera bag, weighs a lot more, does not provide the in-between focal lengths you get with the zoom, and means you have to change lenses more often—which takes time in the heat of the moment, and means more opportunities for dust to enter the camera and settle on your sensor assembly.

If you have one or two favorite focal lengths, it’s probably wise to buy primes of those lengths (especially wide-angles) for optimal image quality, but you should also have a zoom or two to cover other lengths you sometimes need. To get the coverage provided by an 18-200mm zoom, you’d need 18mm, 21mm, 24mm, 28mm, 35mm, 50mm, 85mm, 100mm, 135mm and 200mm primes—and you still wouldn’t have the in-between focal lengths.

MTF Curves

Most manufacturers publish MTF (Modulation Transfer Function) curves for their lenses. These show how well the lens reproduces the contrast and resolution of an original test chart. The horizontal axis shows distance from the center of the image (the center is at the left edge of the horizontal axis, and the extreme edge of the frame at the right), while the vertical axis shows what percentage of the original test target's contrast is maintained. MTF charts usually show curves for different lines per millimeter (the lower ones—for 10 lpm, for example—are indicative of how much contrast the lens can deliver, while the higher ones—for 30 or 40 lpm—are good indicators of how much resolution the lens can deliver. There are also dashed lines, which indicate performance for lines running parallel to the lens radius (sagittal), and for lines perpendicular to those (meridional); these indicate the degree of astigmatism present.



The main things to keep in mind are that higher and straighter are better. The higher the lines are on the MTF chart, the better the contrast and sharpness. The straighter the lines, the more consistent the lens's performance across the image frame. Also, the more parallel the line pairs are to one another, the better the bokeh (diverging line pairs indicate astigmatism, and less attractive bokeh).

MTF charts are generally for the lens at its widest aperture; with most lenses, performance increases as the lens is stopped down a stop or two. For zoom lenses, separate charts are provided for the shortest and longest focal lengths and sometimes an intermediate focal length.

Another important thing to keep in mind about MTF charts is that in most cases, they are hypothetical, calculated from how the optical formula should perform, rather than measured with actual lenses. Imperfections in lens elements, mechanical as well as optical, and production tolerances mean a lens seldom will perform quite as well as the MTF chart indicates. But the MTF charts do let you compare the predicted performance of lenses you're contemplating for your kit.

There are also curves that plot MTF (percent contrast) against frequency (lpm). MTF50 curves, which show what percentage of the test target's contrast the lens can reproduce at different lpm's—MTF50 being the resolution at which the lens can deliver 50% of the test target's contrast.

Ruggedness

Pro lenses are constructed with the best materials, like space-age metals and exotic glass. Their rugged designs are well-sealed against moisture and dust. Consumer-level lenses typically contain more plastics in the barrels and elements, and are less rugged, with little to no moisture resistance. Pro lenses will hold up better under heavy use in tough field conditions. Of course, if you don't put your photo gear to hard use, this is less of a concern. Note that "weather sealed" lenses and camera bodies are not warranted against water damage, but the pro units tend to "weather" the elements much better than the consumer products.

Camera or Lens?

With both DSLRs and lenses, newer is better than older, and higher-end is better than lower-end. So if your budget only allows for one, is it better to get a better camera or a better lens? In terms of a given generation of technology, a better lens with a lesser camera will show more visible benefits than a better camera with a lesser lens. This was especially true in the film days, when all cameras used the same "image sensor"—the film. With digital, each new generation of cameras offers improved image quality due to sensor improvements. So if your DSLR is two or three generations old, you'll probably be better off getting a new camera than a new lens, in terms of image quality. But if you're talking the same-generation, choose a new lens: In reasonably bright light (i.e., at lower ISO settings), the \$1700 Canon EOS 7D Mark II with the \$6099 EF 300mm f/2.8L IS II USM pro lens will deliver better image quality and AF performance than the \$5299 flagship EOS-1D X with the \$1349 EF 300mm f/4L IS USM lens (not to mention, more "reach" for bird/wildlife photography). At higher ISO settings, the EOS-1D X's better full-frame sensor offsets much of that advantage, though.

Another consideration, of course, is your need for a given focal length. If your longest lens is 70mm and you want to start photographing birds, you'll be better off buying a long lens than a new camera body even if you don't have the "latest and greatest" body.

OP

The 3-Zoom Kit

Quite a few pro photographers carry a three-zoom kit: 24-70mm and 70-200mm f/2.8 or f/4 (for full-frame; 16-50mm and 50-135mm or thereabouts for APS-C), plus a wider 16-35mm or longer 200-400mm, depending on the particular photographic specialties (e.g., landscape or wildlife). This yields an optical arsenal that can cover pretty much any needs, with good quality and the kit can be carried fairly easily.



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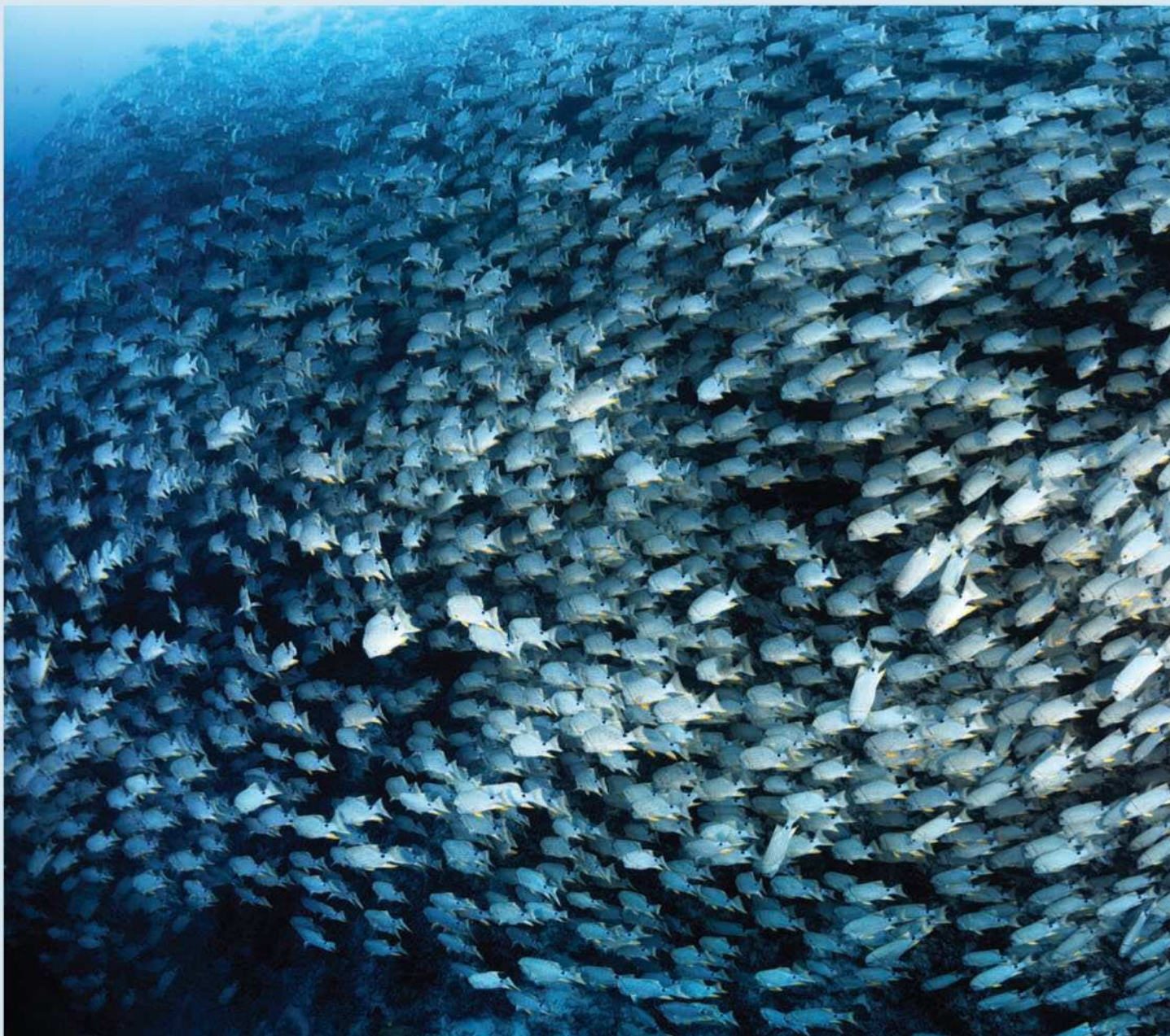


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Aquatic Aggregations

Photo-naturalist **Tony Wu** captures one of nature's most dramatic spectacles—the large-scale spawning of thousands of marine fish in the waters of Palau

TEXT & PHOTOGRAPHY BY TONY WU



Why do you take photos? The answer is different for everyone, but the reason I

tossed aside a career in finance to devote my life to photography isn't just so I can take pretty pictures. There are lots of people who can do that. Photography, for me, is the process of coming across something of interest, researching it, understanding it, obsessing about it and internalizing the unique aspects of my chosen subject to figure out what makes it special, worthy of devoting days, months, sometimes years of my life to. As an example, here's how I became obsessed with how fish reproduce.

The example I've set out here relates to spawning aggregations of marine fish, but this is how I approach all

potential photography projects—*ars gratia scientiae*, as the tagline on my homepage states—meaning, art for the sake of knowledge, in Latin.

Chances are, you've never thought about fish sex. Most normal people haven't. I mean, how stimulating can it possibly be to contemplate the mechanics of cold-blooded marine life reproduction? Ugh, right?

Well, I was normal (in this sense) until 2011, when fish sex became an obsession, an all-consuming desire to plunge myself into the midst of procreating piscines. Bear with me, and I'll explain the what-why-how-when-and-where behind this life-altering turn of events for me.

First, let's set the scene, so you understand what I'm talking about. Picture the ocean, just before sunrise. Imagine that you're submerged 50 feet or so beneath the waves, immersed in dark, moody waters on the precipice of illumination by the first light of day. You kick and fin, inhaling from your life-sustaining tank of compressed air, annoyed that the unrelenting current makes it difficult for you to keep pace.

But that current is critical. Thousands of fish—coming together from who knows how far and deep—are gathered in front of you, in part, because the tidal flow will carry their soon-to-be progeny to relative safety, away from hungry mouths, to a place where fertilized eggs have time to grow, freedom to develop from amorphous blobs of protoplasm into tiny fish larvae.

You watch. You wait. You scan for signs of impending activity. There's a quick glance at your gauges to make a mental note of how much air and, hence, time, you have left. Then it happens.

A single fertile female breaks from the swarm. Compelled by genetic imperative, she accelerates toward the surface with determined urgency, a pack of males in hot pursuit. At the zenith of her spawning arc, the female pivots and bolts for the deep, releasing a billow of eggs. Hormone-laden males track her every move and—sensing opportunity—

release streams of sperm at the critical moment, hoping that theirs will be the seed that completes the reproductive cycle, connecting this generation to the future. Gametes coalesce into streaks of white that linger in the water like contrails from passing jets, a visual metaphor for life's perpetual struggle to survive.

In the seconds that it has taken you to watch this drama unfold, dozens—no, hundreds—of other females have let loose their own procreative ambitions, each pursued by a cluster of single-minded suitors. Throngs of fish swirl and mix in frenzied chaos. Clouds of sperm and eggs obscure visibility like the densest of London fog. Sex-crazed fish surge through milky-white haze. You duck to avert collision.

Peak action spans 30 minutes or more, you doing your level best to keep up, camera in hand, trying to select and frame order out of mayhem. Surprise encounters with bull sharks or other tooth-laden predators ripping through opaque waters spike your heart rate, your adrenaline. This is one of nature's greatest events, one that few have witnessed.

Now that you have an idea of what it's like to be in the middle of a massive fish-spawning aggregation, let me share a bit of background about how I ended up devoting so much time to photographing these spectacles.

It all started in early 2011, when friends told me about a gathering of thousands of bumphead parrotfish (*Bolbometopon muricatum*) in Palau, discovered by a Japanese dive shop named Blue Marlin.

Whenever I take an interest in a specific animal or event with photographic potential, I start by doing some basic research and background reading. My aim is to figure out what's known, what's not, and what aspects of the relevant animal or phenomenon, if any, have already been documented with high-quality photographs. The result of this initial process determines whether I pursue the matter further, or simply move on, having satisfied my curiosity.

These days, the Internet is my first resource; it's the largest library ever assembled. If knowledge is power, access to the Internet is as close to omnipotence as I'll ever get. I often invest days or weeks collecting and reading available information. After perusing online



A massive aggregation comprising tens of thousands of sailfin snapper. These fish normally live in deep water, but gather several times a year for this spawning phenomenon.

resources, I move on to books, periodicals and published scientific papers, taking notes, comparing sources, familiarizing myself with current knowledge. Finally, I reach out to researchers or experienced specialists with questions I can't answer myself.

The process is important. Why? Because there's little to be gained by sending questions willy-nilly to experts.

Think of it this way: If you're the world's foremost authority on a given subject, you're probably fully occupied researching, writing, teaching, etc. If you come across an insightful inquiry that shows that the person asking the question has done a lot of background work to understand and appreciate your field, you might set aside time and effort

to respond. If it's a basic question that can be answered with a simple search engine query though, why waste your time? Right?

Not everyone I contact responds, but many people do. Over time, if I demonstrate consistent interest and provide constructive feedback from what I observe in the field, many initial email queries become long-term correspondences. A few develop into treasured friendships.

In the case of bumphead parrotfish, I soon learned that a massive spawning aggregation like the one I described above had never been documented. Not by divers, not by scientists. In the course of my initial research, I came across photographs of bumphead spawning,



A bunch of twin spot snapper rushing up to spawn, releasing sperm and eggs into the water column.



Bumphead parrotfish spawning in the early morning. This group was part of a mass aggregation comprising thousands of fish.



but none that I felt was of sufficient quality and visual impact to do justice to such a breathtaking spectacle. No documented precedent; check. No stunning images; check. The prospect of photographing something new, particularly a phenomenon of such visual scale and impact, proved irresistible, which is how I found myself headed to Palau in early 2012.

If you're not familiar with this Pacific island nation, it has been a hotspot for recreational scuba diving since the early 1970s. Hundreds of thousands of people from all over the world have visited the islands to plunge into idyllic tropical waters and marvel at marine life. Despite the destination's popularity and the plethora of dive operators in Palau, for decades no one noticed that there was a monthly gathering of thousands of bumphead parrotfish.

For perspective, bumpheads are large fish, with adults weighing up to 100 pounds each. In other words, we're not talking about small, easily overlooked animals. With several thousand fish taking part in the group spawning, we're talking about monthly aquatic parties involving tons of big fish!



Bumphead parrotfish gathering in shallow water early in the morning as part of their preparation for group spawning involving thousands of fish.

My friends first noticed in 2009 that there was an ebb and flow to the appearance of bumpheads. Over the next two years, they put in many hours observing the fish, recording data and identifying patterns in the spawning area. By the time I visited in 2012, they had worked out the mechanics of where and when the fish gather. This allowed me to concentrate on watching behavior and figuring out how to capture the best images possible—no small challenge.

First, since there was no precedent for observing a spawning aggregation involving so many fish of this species, it wasn't like I could glean much about what to do or how to anticipate spawning behavior from a book or research paper.

Next, even though my friends had worked out the fish's schedule, it was one thing to see the bumpheads, another altogether to photograph them in a way that conveyed the scale, beauty and biological importance of the event. Working in extremely low light, with fast-moving subjects, underwater—now there's a photographic challenge if there ever was one.

And, finally, fish live in water. People don't. Though I'm a decent swimmer

and experienced diver, the fish left me in their wake during my first few attempts to photograph their aquatic orgies. I had to up my game, so to speak, in order to get into the thick of the action. I trained to swim faster, for longer, with less air consumption, than I ever had.

All told, I spent 45 days in Palau during 2012, divided over three visits, photographing mass reproduction of bumphead parrotfish. I probably spent the same or more time reading and training to prepare myself. I made a lot of mistakes (i.e., I failed miserably at first), but taken together, my initial background research, extensive consultation with friends in Palau who had already done a lot of legwork and focus on physical training stacked the odds of success in my favor.

Since my initial foray with the bumpheads, I've photographed spawning of several more species in Palau: twinstot snappers (*Lutjanus bohar*); sailfin sea bream (*Symphoricarichthys spilurus*); and Napoleon wrasse (*Cheilinus undulatus*). I'll be traveling to Palau again to continue this project. In the meantime, I'm doing more background reading, sharing information with scientists who

specialize in spawning aggregation, and relying on friends in Palau for updates.

I do my best to apply the discipline and thought process of science to my projects, with the goal of creating photographs that are both aesthetically pleasing and imbued with meaning. Though often fraught with difficulties and obstacles, this path has proven rewarding. I'm forever reading, studying, trying to learn new skills and figure out solutions to technical problems—24 hours a day, 365 days a year, isn't nearly enough time.

I've met a lot of fascinating people, experts in their fields, the best people from whom to learn. I'm fortunate to count many as valued friends. Sometimes, I'm even able to give back to them, providing information, notes from first-hand observation and photographs to help impart life to abstract text. Since many of the subjects and situations I choose demand a high degree of physical exertion, I've also had to stay fit, a nice fringe benefit. And, finally, on those rare, rewarding occasions when everything comes together, I succeed in creating aesthetically pleasing images that also have meaning and purpose beyond visual gratification.

Let me conclude with one parting thought. My point in writing this article isn't to suggest that my particular philosophy is the one and only *raison d'être* for nature photography. It's just what works for me. What I'm saying is this: Think of the billions and billions of people who have ever lived. How many had the time, education, freedom, wealth, technology and opportunity to create and share beautiful images of the world?

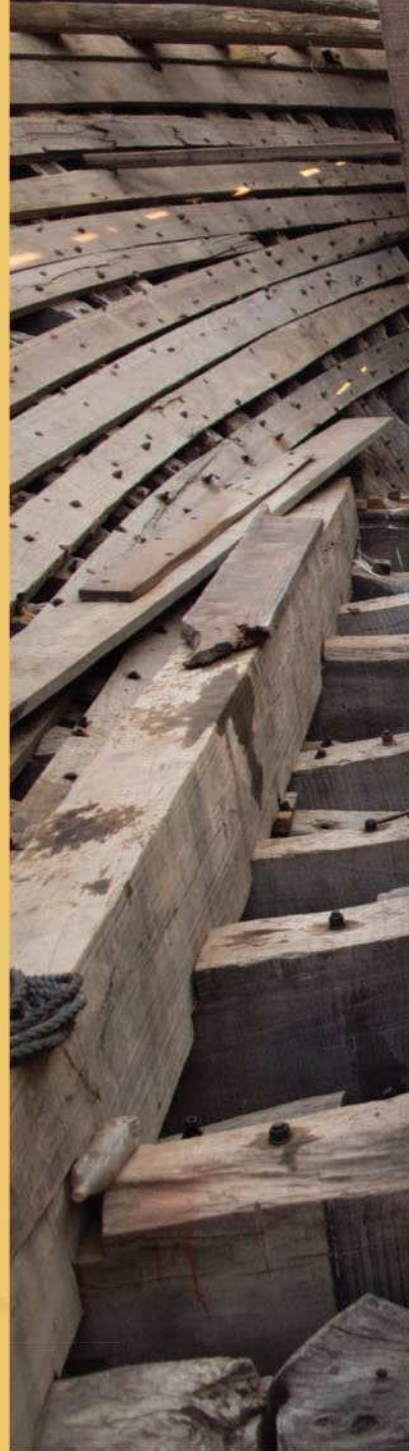
Those of us fortunate enough to be in this category represent a fraction of humanity, less than a rounding error in percentage terms. A very small, tremendously privileged rounding error. To paraphrase Uncle Ben from the *Spiderman* saga: With great power comes great responsibility. OP

To see more of **Tony Wu's** photography, visit www.tonywublog.com. Find him on Facebook at www.facebook.com/tonywuphotography.

Professional photographer David Wells shows how to create a polished look to your photo essays and video projects by knowing how to work with the quality of light as it changes during the day

TEXT & PHOTOGRAPHY BY DAVID WELLS

WORKING WITH MIXED LIGHT



Broad images taken in open shade at midday will have a slightly cool look because the illumination is coming from the blue sky.



When the midday conditions become too harsh, go into open shade to get richly saturated colors and detailed shots.



I started my professional photography career back in 1979. That year I sold my first image for publication. In the ensuing 35 years I have been continually selling images as an editorial photographer and a stock photographer, portraying the world as I find it rather than working in the controlled environment of a studio. Along the way I have continually evolved. I embraced digital imaging in 2003 and started to work with video four years ago.

Over those three and a half decades,

the definition of what makes one a professional publication photographer similarly has been changing. I say this because, with the democratization of photography through digital imaging and smartphone cameras, it's more important than ever to clarify the definition of just what a pro is.

It used to be a pro was simply someone who was paid for their photographs. Then it became someone who could get the best shot. More recently it was the person who could get the highest qual-

ity image in changing situations. In my own experience there is one other underappreciated definition of what makes a professional publication photographer. In the world of publication photography done outside of a controlled environment, a pro has all the skills noted above. They also must know how to use time of day, and the light that comes with different times of day, to their advantage.

Yes, every photographer, pro or otherwise, dreams about getting assigned to spend months photographing a given



With the sun just over the horizon, you can create dramatic backlit images with a dark foreground.

location for an international magazine. The cold reality of the world that I work in is that being given a week to cover a region in India is more typical. In this article, I will be talking about a November 2012 assignment I did for *Saudi Aramco World* magazine to make still images and video of the Kutch region of Western India.

My assignment was to traverse as much of that area as possible, giving a sample of each place in the form of still images and video clips. My wife, who is from India and has some language facility, was my assistant, guide and occasional translator. We also hired a driver with knowledge of the roads and who had better local language skills, which was all but a requirement to pull off this project in one short week. Due to the many challenges of moving around this part of India at night, we settled on a plan of shooting sunrise through late morning,



Unlike sunrise shots, as the sun gets a little higher in the sky, you will get more light on the ground and longer shadows.

Shooting The Video

You can see finished video from the Kutch project at www.aramcoworld.com/issue/201305/kutch-video.htm. The full video includes stills, time-lapse animation and pieces from the 27 shorter videos that are thirty to ninety seconds each. The short vignettes populate the map at: www.saudiaramcoworld.com/issue/201305/between.salt.and.sea.htm

The approach that I took while working on assignment in Kutch, especially in terms of how I allotted my shoots based on time of day and thus the resulting light, should inform the thinking of any established or aspiring publication photographer. The difference between working like a pro and an amateur is as much about managing time (and thus, light) as it is about any other skill. As someone increasingly working in video as a one-man-band, those same skills of time and light management are more important than ever.

Getting close to sunset, make use of the long shadows and make them part of the composition. Here the shadows create a leading-line effect drawing the eye to the tourist couple being photographed.



followed by mid-day drives to the next location, followed by afternoon/sunset/evening shoots.

If you look at the map at <http://www.saudiaramcoworld.com/issue/201305/between.salt.and.sea.htm>, you'll see the 27 different venues we photographed and recorded on video during the week's shoot. At least half a dozen more were covered, but they did not make it into the final piece, which is typical with any editorial assignment.

If you look at the images accompanying this article you will see a small sample of the images I made. Most importantly you will see the images tagged according to the time-of-day categories that I use when blocking out and executing projects like this. I have six categories that I use when thinking of when an image will be made or how I will use a given block of time while on assignment. Those are sunrise, morning, midday reserved for detail shots, which can be the same time as the midday reserved for indoor shots of people, followed by afternoon and sunset/night.

Midday is a GREAT time to shoot portraits of people near windows. When making posed portraits, I use the same type of windows to create dramatic portraits. The directional light that comes in from one side creates evocative portraits. The way I control the impact of that is mostly in how I position my subject in

relation to the light source and the background. The final variable is controlling how much or how little of their face do I ask them to turn towards that light source. The degree of this varies based on how I pose them and on how I position myself in relation to them and the light source.

The Wells Point

While many photographers hew to the idea of only photographing during the so-called Golden Hour, I have always found that time to be too limiting. Yes, the light is warm and beautiful, but it is too short a time for me to work efficiently and there are many other colors I want in my images besides the yellow/orange/red that often dominates that time of day. I work during the golden hour, but I continue working right up to the point where the sun reaches 45 degrees above the horizon. Then I stop working outside until the sun arcs through the sky and reaches that same 45 degree point in the afternoon.

I use something that I call The Wells Point to tell me just when that is, to know how late in the morning I can shoot before the light goes bad, and at what point in the afternoon the light turns good. The Wells Points, as I tell my students, are when the shadow is the same length as the object that casts that shadow. I am 5' 7" so when my shadow is 5' 7" in the morning I stop, and in the afternoon I will start again when the shadow gets to that length or longer.

Following The Wells Point and shooting further into the late morning light and using the early afternoon light after The Wells Point expands my shooting time, which is something critical on shoots like the Kutch project. That same light also has more contrast and yields images that are nicely saturated in terms of their colors. The nice thing about using The Wells Points is the idea works around the world, regardless of season. In the dead of winter in the Northeastern U.S., for example, the sun never gets above The Wells Points, so winter light in places like Boston, New York and Philadelphia is always great in the winter.

With my expansion into video, I've become a bit more disciplined about white balance. I spent years shooting color slides and I once even owned a color meter for fine-tuning my color filtration. So I know about color tem-

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perature and white balance. On the other hand, shooting RAW files with the myriad options for correction in post-production had made me a bit loose when it came to color temperature and white balance. While it's technically possible to color correct video, why would I want to spend the time doing that when an extra 30 seconds spent during capture will give me video with the white balance I want.

In some cases changing my position will change the white balance. For example, a mud wall with sunlight bouncing off of it can make or break a video clip depending on how close the subject is standing to that “warm light reflector,” so I have to control that variable myself. Similarly, open shade under most awnings tends to be pretty blue during hard midday light. But, controlling where I put myself or my subject can reduce, eliminate or even make that blue color cast a useful part of the narrative I'm creating.

So, when shooting video I follow two rules that organically spill over to make my still photos better. First, I'm con-

stantly checking the white balance of my video clips to make sure my whites are fairly neutral and that I do not have any wild fluctuations in white balance between video clips—if, for example, the inside of a workshop for handmade embroidery is slightly warmer in one corner and a bit more neutral in another corner, I don't care. In fact, that variance, as long as it's not too extreme, gives the final video a more organic feeling. Those lighting situations, where there are extreme changes in white balance, require a custom white balance, which is so easy to do with today's camera, so why not do that?

To me, the big issue is how to accurately judge the white balance and my potential corrections for the videos in question. This is especially challenging when working in bright sun where the back of the camera monitors are hard to read at best. Having a bright electronic viewfinder on my cameras allows me to see the imagery that I've been making through a darkened viewfinder so I can judge the white balance, exposure, etc.



*As you approach
a Wells Point in
the afternoon, the
light is warmer
and much softer
than at midday.*

Some photographers use magnifiers or external monitors with sun hoods to make this easier.

Two other tools are keys to my success in a project like this—having a camera with an articulating LCD screen and a tabletop tripod. When photographing from high or low, I use the folding screens to compose so as not to contort my body to see through the viewfinder. Once I settle on a composition, I often set up my shot with the camera on my Really Right Stuff Pocket Pod tabletop tripod. It allows me to shoot still images, video and the occasional time-lapse animation and have them all flow together seamlessly. **OP**

You can see more of **David Wells'** photography and video assignments at davidhwells.com. Check out his blog at thewellspoint.com.

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See more articles about how to work with changing light in order to improve your images on the OP website at outdoorphotographer.com.

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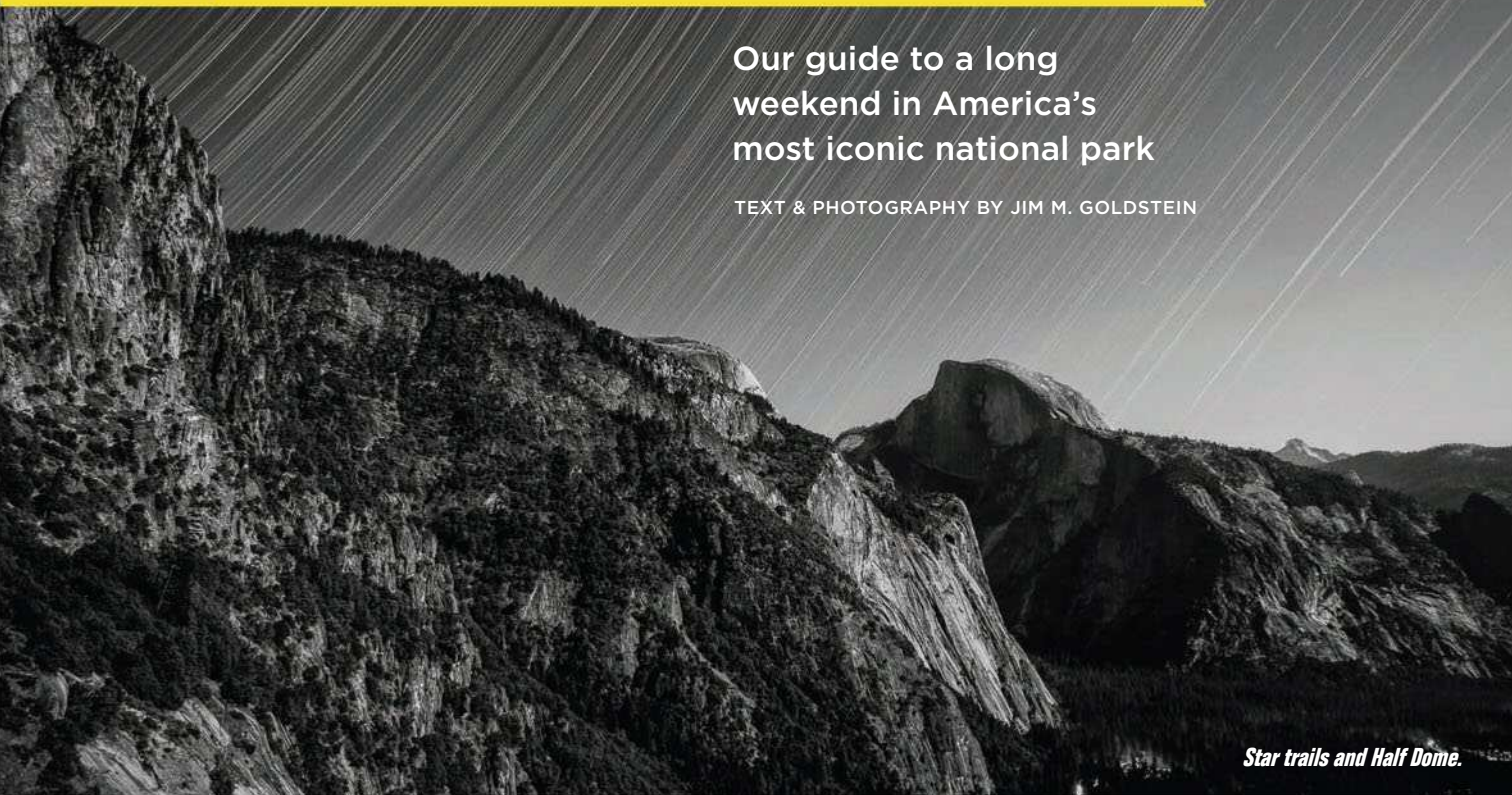
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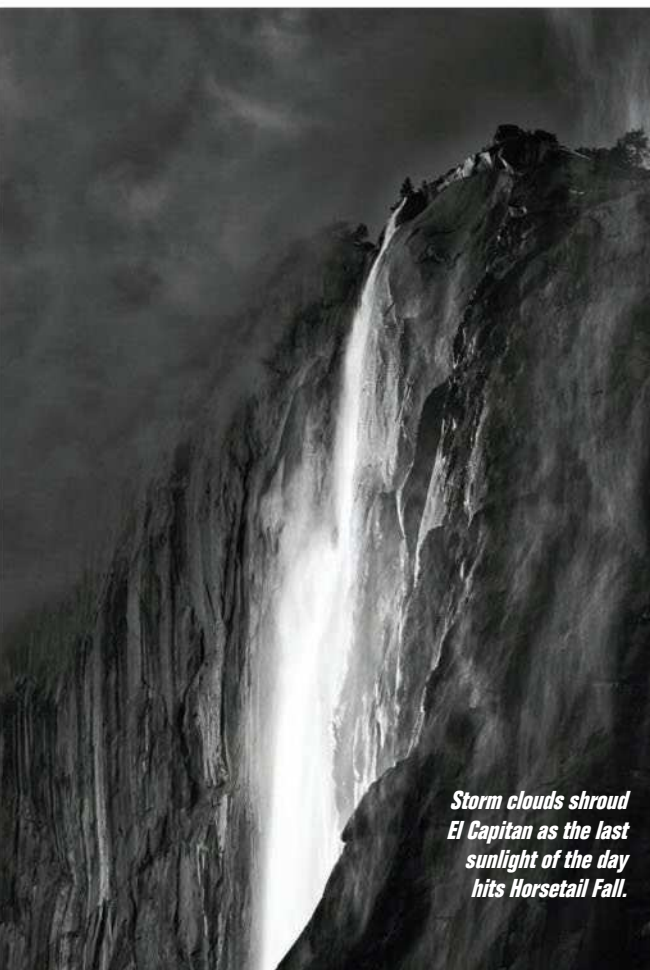
3 Days In Yosemite

Our guide to a long weekend in America's most iconic national park

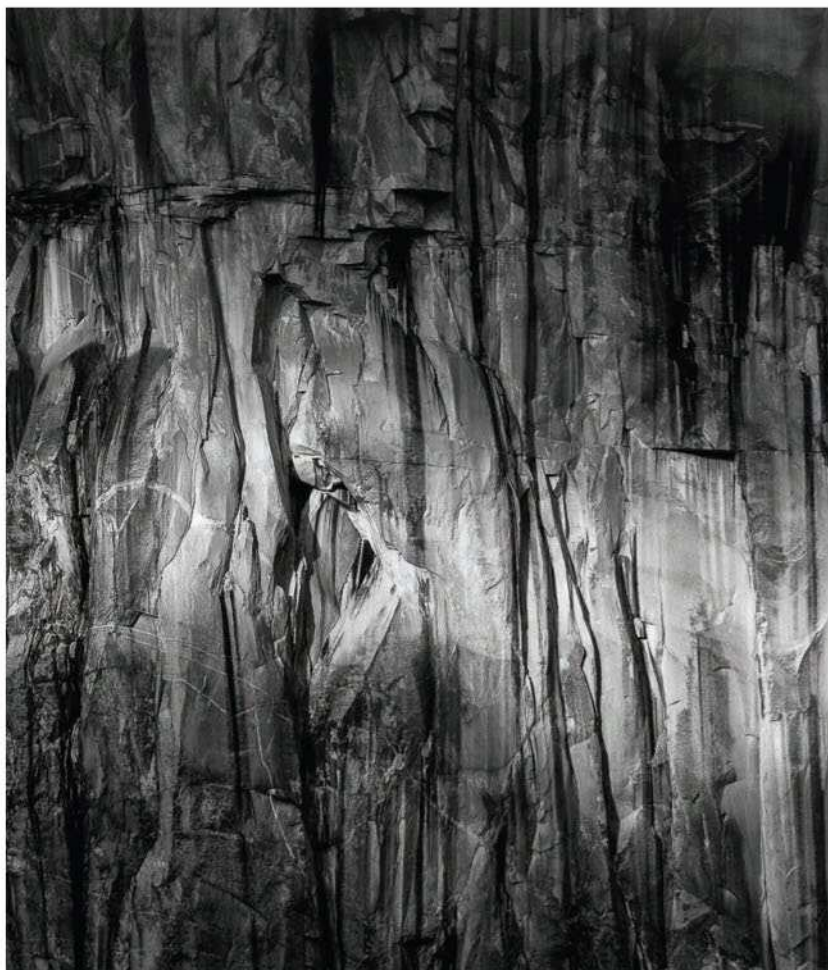
TEXT & PHOTOGRAPHY BY JIM M. GOLDSTEIN



Star trails and Half Dome.



Storm clouds shroud El Capitan as the last sunlight of the day hits Horsetail Fall.



Today is the day you've decided that you're going to photograph Yosemite, arguably the crown jewel of the U.S. National Park system. Whether it's your first time or you're revisiting with fresh eyes to see the park anew, you're intent on walking away with creative and memorable professional-level images. One problem—Yosemite is so rich with photo subjects, where do you begin? Consider these tips and recommendations your cure for analysis paralysis when photographing Yosemite.

Every time I visit Yosemite, even after 20+ years of doing so, I am faced with a dilemma similar to one I once created for my dog. Moe, a Jack Russell Terrier, loved to play ball and in fact he was neurotic about it (like I am about photography). One day I decided to play a joke on Moe, dumping a box of 25 tennis balls in front of him. My hyper dog, who normally would run across my house 5 times before I could throw a single ball, became a statue unable to move and decide which ball to go after. He repeatedly missed opportunities to catch balls falling right before him. Drop a photographer in Yosemite without preparation and you're bound to suffer a similar fate missing great opportunities. To avoid this, as I do on all my trips, I formulate a plan based on the following parameters: time of year, weather conditions, time of day, photo goals and type, location and backup photo subjects.



El Capitan cliff-face detail.

▲Time of Year

Time of year or season will open the door to specific opportunities such as Horsetail Fall in February (made famous by Galen Rowell), Dogwood flowers in April, waterfalls flowing at peak in May and June, fall color in October, and snow during winter months to name a few. How the seasons impact the landscape, wildlife and foliage should be top-of-mind as it will set the tone for the photos you'll capture.

▲Weather Conditions

Weather conditions are always important and can change hour to hour. When visiting the park, regularly monitor weather conditions both for your safety and to identify good photo opportunities. Embrace changing weather conditions as it can create wind, clouds and dramatic pipes of light. The two biggest pitfalls a photographer can face in Yosemite is staying in due to weather and not seeing the changing weather through to its entirety.

▲Time of Day

Once in the park be sure to get your directional bearing to identify which way light will hit for sunrise and sunset photos. Keep in mind if you're in Yosemite Valley proper the massive granite walls shorten the amount of time light falls on the landscape. Conversely, shadows produced by the steep valley walls can create different types of photo opportunities. Due to the shorter hours that light streams into the valley, you'll want to schedule your time properly to get to your destination within the park. When possible, if you're out to photograph sunset stay until dark, and if you're out to photograph sunrise arrive in the dark. It is at these transition periods the landscape looks most dramatic and you're likely to see wildlife. An additional consideration to keep in mind is that daytime photos of Yosemite only tell half the story of its beauty. The lack of light pollution allows for the viewing and capture of the stars, while the light of the full moon falling on peak waterfall flows can create moonbows (rainbows by moonlight).

▲Photo Goals & Types

I've found having tunnel vision to preconceived ideas and goals to be the number-one pitfall that photographers face when they make their special photo trips. We become our own worst enemy by focusing on one goal or outcome and missing a variety of other creative opportunities. Before you step out the door have a few goals in mind based on the previous parameters, but also be open minded to two to three styles of photography (ex. long exposures, zooming/panning, macro, wide-angle landscapes, etc.) I always recommend this to my workshop attendees to foster exploration and creativity. The resulting epiphanies and discoveries always make their photos so much more satisfying and rewarding.

▲Location

If you happen to be visiting Yosemite for the first time you'll be happy to know that many of the most iconic views are a short walk from roadside turnouts. By all means take in these views and get these photos to get them out of your system (ex. Tunnel View, Yosemite Falls, Bridalveil Fall, Glacier Point, etc.) That said, allocate ample time to explore the park and discover some-

(Cont'd on page 72)

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For more information, contact: Gary Hart, (916) 283-6362, gary@garyhartphotography.com, www.eloquentimages.com.

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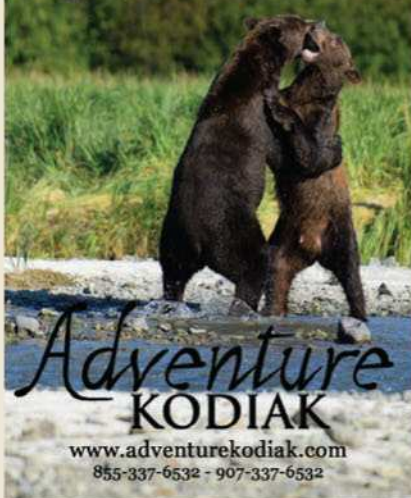
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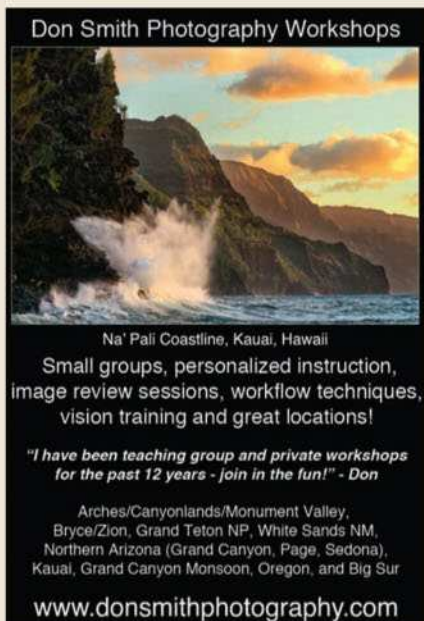
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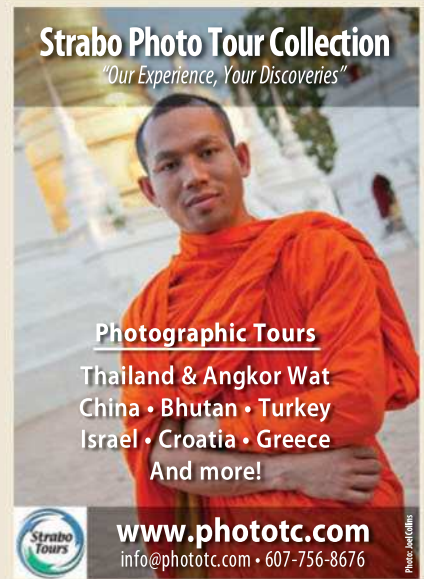
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For more information, contact: (916) 759-0776, gavin@imagesinfricasafaris.com, www.imagesinfricasafaris.com.



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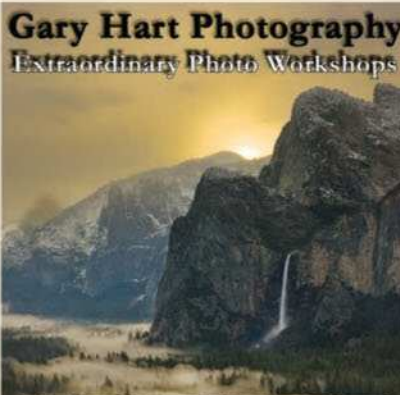
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Ice formations on the Merced River.

thing new. A walk down to the Merced River or through an open meadow can yield unique views and provide a variety of subjects to photograph. Weather permitting, think outside of the valley and visit equally scenic locations including Tuolumne Meadows, Hetch Hetchy or many spots along Tioga Pass. There is far more to Yosemite than Yosemite Valley.

▲ Backup Photo Subjects

Yosemite is so densely packed with beautiful scenery, wildlife and foliage that even if your primary subject is not worthy of shooting there is likely something within a stone's throw that is worth exploring and discovering. The key to identifying a backup subject is to break away from your initial preconceived photo ideas. Bring different focal length lenses, think in terms of black and white versus color, change your perspective, look for small subjects versus big, etc. Adopting this mindset will ensure you'll always walk away with something memorable to share or grow from as an artist.

▲ My Personal Favorites

Yosemite routinely takes the breath away from even the most seasoned local photographer, so enjoy the wow factor of the grand vistas. My favorite grand views can be seen from Tunnel View off Highway 41 and Glacier Point, Taft Point and Sentinel Dome off Glacier Point Road or via the Four Mile Trail. If you're up for a physical challenge, the hike to Upper Yosemite Falls provides stunning views of Half Dome and the valley below, but it is not for the faint of heart as its quite physically grueling. Equally amazing is Cathedral Peak and Cathedral Lakes near Tuolumne Meadows.

Most importantly, don't miss out on the subtle beauty at your feet. Intimate subjects ranging from flowers, ice formations, rock patterns, fallen leaves, lichen on tree bark and even insects can be

found with leisurely walks along the Merced River and various meadows including El Capitan and Cook's Meadow in Yosemite Valley. While the grand views are what people expect to see when returning from Yosemite it is the intimate portraits of the environment that often tell the most interesting stories. While the crowds flock to the most popular hiking trails, more accessible walks along Tuolumne Meadow, the Mariposa Grove, Olmsted Point and Yosemite Valley floor can be meditative and foster a more conducive state of mind to visually explore.

▲ Black and White

Ansel Adams set the bar for black and white photography in Yosemite, and with every visit to the valley I make a pilgrimage to the Ansel Adams Gallery for inspiration. Taking in the featured photographs there I am reminded how much lines, shapes, patterns, contrast, key, texture and tone contribute to a great black and white image. The absence of color heightens awareness to these properties of our subject and composition. It is for this reason that black and white photography requires a mind shift in how we see and present our images to photo viewers. Yosemite lends itself exceptionally well to black and white photographs thanks to dramatic light and shadows, its texture-rich environment and plentiful organic shapes created by the erosion of the landscape by water, wind and plants. Challenge yourself by exploring and capturing black and white subjects amidst Yosemite's grand, subtle views. You'll create both memorable photos and a memorable experience. **OP**

Jim M. Goldstein is a professional outdoor & travel photographer. You can follow him on his blog at www.jmg-galleries.com/blog, on Twitter @jimgoldstein, on Facebook at /jmggalleries, on Instagram @jimgoldstein and on Google+ at +jimgoldstein.

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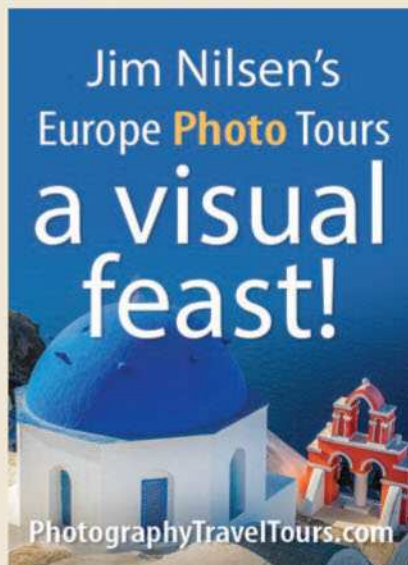
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your book in PDF format for printing. But, for most photographers, using the site's book-making features will provide the best results.

A couple of tips: Gather all the photos you want to use in your book into one folder on your computer desktop—this will make it easy for you (and the book-making software) to find them. Make sure the images have sufficient resolution: They should be 300 dpi at the published size. If the images are too small, they will look bad in the printed book. Note that 72 dpi is fine for ebooks that will be viewed on-screen rather than printed. Be aware that it can take a long time to upload lots of high-resolution images.

There are quite a few self-publishing companies that can deliver excellent books (do a search for “self-publish photo book”). Here's a brief look at a few, to give you an idea of what's out there. If you'd like to sell copies of your book, keep in mind that some self-publishing companies also provide marketing and sales services (for a fee).

Adorama

Noted photo-gear retailer Adorama offers book publishing through its www.adoramapix.com site. Adorama's photo books feature lay-flat binding, so the book's gutter doesn't disrupt photos, and they're printed on photo paper (in a variety of surfaces, from matte to high-gloss).

You can choose cover type (leather-lux, real leather or fabric cover), format (portrait, landscape, square or horizontal spine), and size (6x4.5 to 12x15 inches, 10 pages minimum, 76 pages maximum). Prices range from \$15.40 for a 6x4.5-inch

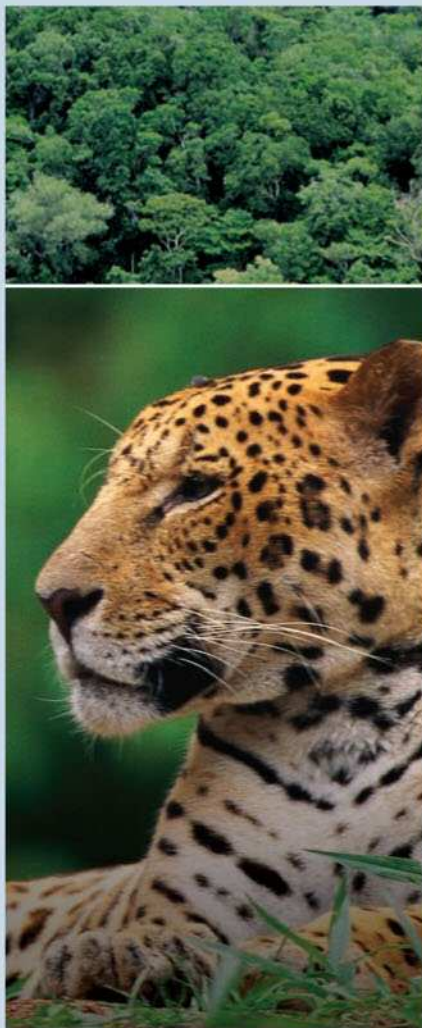


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Bay Photo

Bay Photo (www.bayphoto.com) is a popular, longtime custom-printing lab that was the first to implement ROES (Remote Order Entry System). Today, you can use Bay ROES to create and order photo books (and other Bay Photo products) online, or you can download Bay Photo's free Bay Design all-inclusive layout design software, and use that to create your book on your computer, then upload your order. Both provide layouts that you can modify as desired, as well as built-in ordering from Bay Photo. Bay Books are available in sizes from 5x5 to 12x12 inches (including portrait and landscape formats); prices range from \$20 for a 20-side 5x5 softcover book to \$80 for a 20-side 12x12 hardcover one, with additional sides running from 50 cents (5x5) to \$2.05 (12x12) each (two sides = one additional sheet). Bay Books are printed on high-quality Indigo printers, using 4-color and 6-color (adds light cyan and light magenta) inksets. Turnaround is a quick three days.

Blurb

Blurb (www.blurb.com) is a popular independent book and magazine publishing platform, for both photo books and all-text books. Photo books are available in sizes from 7x7 to 13x11 inches, a softcover 20-page 7x7 costing \$12.99 (additional pages 40 cents/2) and a hardcover 20-page 13x11-incher, \$49.99 (additional pages 80 cents/2). Blurb books can run from 20 to 240 pages (to 440 pages with standard 80# paper stock). Prices per book go down as order size goes up, in several steps. You can download Blurb BookWright software (which was designed specifically for easily creating print books, magazines and ebooks) to design your book, then upload it for printing. The program contains templates and layouts that you can use or modify to suit. There's also a simple online ebook-creating application. Custom Tabletop Photo Books feature bookstore-quality binding and paper.



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MyPublisher

MyPublisher (www.mypublisher.com) is related to Shutterfly, but deals in higher-end photo books aimed at pros rather than general consumer books. There are four sizes: Mini (3.5x2.75 inches, \$2.99 for 20 pages, softcover only); Pocketbook (7.75x5.75 inches, \$12.99 softcover/\$19.99 hardcover for 20 pages, additional pages 49 cents each); Classic Hardcover (11.25x8.75 inches, \$34.99 for 20 pages, additional pages 99 cents each); and Deluxe Hardcover (15x11.5 inches, \$64.99 for 20 pages, additional pages \$1.99 each). Lay-flat pages are available in the three largest sizes. You can choose 120# or 180# paper stock, matte or satin finish, several nice cover options, and even slipcases and presentation boxes. You can design the book yourself on your computer using downloadable easy-to-use MyPublisher BookMaker software.

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Shown with optional harness

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3Xpandable Internal dimensions 8" x 8" x 19.75" or 23.5" or 27.75"

Accommodates camera body with lenses such as Canon 200-400mm, 300mm f/2.8, 400mm DO, 500mm, Nikon 200-400mm, 300 f/2.8, 500mm, Sigma 500mm, 300-800mm, Sony 500mm

4Xpandable Internal dimensions 9" x 9" x 21.5" or 24.5" or 28.75"

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Cold air and hot water made for tricky shooting conditions when Alexander Kirichko captured this shot of Japanese macaques at Jigokudani Monkey Park near Nagano, Japan. "It was cold, -5° C, and there was a lot of snow, 50-70cm," Kirichko recalls.

Pool Party

"During the day, the monkeys like to spend some time in the natural hot pool, where the temperature of the water is 40° C to 42° C. I wanted to take a low-angle shot of these three babies that gathered close together in the pool trying to keep each other warm,

but because there was a big difference in temperature between the water and air, a lot of steam came up from the water. It was really hard to get correct focus and exposure." See more of Alexander Kirichko's photography at www.kirichko.net.



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